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# REPORT

OF

## A STUDY OF CERTAIN PHASES OF THE PUBLIC SCHOOL SYSTEM

OF

BOSTON, MASS.

MADE UNDER THE AUSPICES OF THE BOSTON  
FINANCE COMMISSION.

*Wick*

*7 352*



Exchange Duplicate, L. C.

CITY OF BOSTON  
PRINTING DEPARTMENT  
1916

*Ref.  
V. g. e.  
H. g.*

CITY OF BOSTON,  
IN CITY COUNCIL, July 6, 1916.

*Ordered*, That the City Clerk be authorized to have printed an edition of 1,000 copies of the report made to the Finance Commission by Dr. James H. Van Sickle on the School Department, the expense of the same to be charged to the appropriation for city documents.

Passed. Approved by the Mayor July 7, 1916.

Attest:

W. J. DOYLE,  
*Assistant City Clerk.*

D. of D.

APR 22 1917

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## LETTER TO THE BOSTON FINANCE COMMISSION.

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SPRINGFIELD, MASS., January 22, 1916.

### *The Boston Finance Commission:*

GENTLEMEN,— I have the honor to present herewith a report of a study of certain phases of the public school system of Boston having to do chiefly with organization and costs. The scope of the study is indicated by the following outline submitted by you:

#### SCOPE OF THE STUDY.

1. Cost of administration of the school system, with especial emphasis on such features as executive officers, viz., Superintendent and his assistants; the Secretary of the School Committee and his assistants; the Business Agent and his assistants; the assistant superintendents; the directors and supervisors of special subjects; the value of each and opportunities for coördinating their work and eliminating any extravagant and unnecessary features.

2. High and grammar school districts; present arrangement of duties of principals and opportunities for economy by enlargement of jurisdiction and districts.

3. The following questions:

- a. The proper number of pupils to a teacher.
- b. The lengthening of the school year.
- c. The holding of alternate sessions with alternate teacher every day, so as to economize school buildings and school equipment.
- d. The requiring kindergarten teachers to work at both morning and afternoon sessions for their classes, instead of the present arrangement of one teacher to each session in certain districts.

4. The elimination of extra pay to teachers for service in vacation schools and other offices with extra pay for persons employed on annual salaries.

5. The advisability of reducing the common school course from eight to seven years.

6. The value of new schools and studies recently established by the School Committee,\* namely, prevocational schools, continuation schools, industrial schools, courses of study in evening work under the titles of "Extended Use of School Buildings" and "Evening Centers," and summer schools, both high and elementary.

7. Method of paying salaries to teachers; advisability of paying by check instead of in cash.

8. Whether or not the system of furnishing additional school accommodations is being carefully and economically planned; *e. g.*, is the kind of construction advisable, and are the new accommodations excessive or inadequate.

It would have been impossible for me to undertake the study had I not been able to secure the coöperation of a group of men expert in their several fields, who cared far more for the professional aspects of the service they could render than for any remuneration they might receive. I therefore organized a committee for the study and divided the work among its members in accordance with the predominant interest of each.

#### THE COMMITTEE.

JAMES H. VAN SICKLE, Superintendent of Schools  
Springfield, Mass.

Director of the Study and Chairman of the Committee.

GEORGE DRAYTON STRAYER, Professor of Educational  
Administration, Teachers College, Columbia Uni-  
versity, New York.

Administrative Offices and Supervision Districts.

LEWIS H. CARRIS, Assistant Commissioner of Education,  
State of New Jersey, and

EGBERT E. MACNARY, Supervisor of Manual Training  
and Principal of the Vocational School, Springfield,  
Mass.

Pre-vocational and Vocational Features of the Schools,  
EDWIN HEBDEN, Statistician, Baltimore, Md.

Vocational Needs of Boston Children.

LEONARD P. AYRES, Director, Division of Education.  
Russell Sage Foundation, New York City.

The Construction of School Buildings.

EARLE CLARK, Statistician, Russell Sage Foundation,  
New York City.

General Study of Costs.

---

\* From 1911.

DON C. BLISS, Superintendent of Schools, Montclair, N. J.

The Organization of Supervision and the Work of Special Classes.

HENRY S. WEST, Professor of Secondary Education, University of Cincinnati, Ohio.

The High School Situation.

#### METHOD OF THE STUDY.

It was not convenient for all members of the committee to be in Boston at the same time. There was a certain advantage in this, for since their observations on the ground were distributed over a period of three months, the director found it possible to take up with each member in turn the particular phase of the study allotted to him. In this way only, within the time available, could he gain the necessary insight into each of the complex problems involved which would enable him to present a unified report.

Though the director holds himself individually responsible for each and every part of what is here presented, the report represents the combined judgment of all who participated in the study. Though a particular phase of the work was assigned to each member of the committee, there were frequent consultations as the work progressed, and toward the close a formal conference was held in New York, lasting two days, at which every item here presented was fully discussed.

Conferences were held with the Superintendent and with the assistant superintendents, both individually and as a board; with the Secretary, the Business Agent, the Schoolhouse Custodian, heads of special departments, and with representatives of the teachers' organizations.

Three conferences were held with the School Committee, one at their rooms at Mason street, and two in joint session with the Finance Commission at the commission's headquarters. All the resources of the School Department were placed at our disposal. Statistics were promptly gathered and inquiries cheerfully and courteously answered.

Data for the comparisons made in the chapter on the Construction of School Buildings were found in the published reports of the Schoolhouse Commission, in the law under which the commission operates, in the Rules and Regulations of the School Committee and in the

course of visits of inspection to typical school buildings of the city. Additional data, which, early in the study, the commission was asked to furnish (but at first refused to give), were received subsequent to the completion of the report.

A more extended discussion of the activities of the department might have been given had these additional data been made up in time for our use. The delay is not of great consequence, however, as the committee, after such examination as it has been possible to make, discovers nothing in the additional material tending to change its announced conclusions.

The coöperation which we received from the School Committee and its officers and employees from the beginning to the end of the study was of the most satisfactory character.

If any benefit accrues to the Boston school system from our study, it will be due in no small measure to the free interchange of opinion with the School Committee as the study proceeded and the full discussion of all proposals while these proposals were still tentative in form. The report contains no surprises. Its contents, except as to details of phrasing, are known to the School Committee in advance of publication and, in the main, have their approval.

What follows does not purport to be a complete survey of the school system of Boston. Conclusions of limited range are presented in response to specific inquiries set forth above. A complete survey of the school system would require careful and prolonged consideration of many topics not included in this study, among which are:

1. The relation of the courses of study to individual differences existing among children and to modern social demands.

2. The quality of teaching.

3. The achievements of pupils.

4. The adequacy of present provision for:

Physical welfare of children.

Pre-vocational and vocational training.

Special classes.

Playgrounds.

5. The possibility of improving the present system of recording and reporting school facts, including the consideration of the question of clerks in elementary and in high schools.

6. An industrial-commercial survey.
7. The classification of children in the school system, including a study of retardation, elimination, and progress of children, together with a consideration of promotion rates, failures by studies, and the like.
8. A study of the distribution of expenditures among the several units of the school system for the sake of discovering any further possibility of saving without a decrease in the efficiency of the school system.
9. An investigation of the adequacy of the present school plant, with special reference to the effect of such accommodations or equipment upon the health and achievement of school children.
10. An inquiry concerning teachers, including the recruiting of the corps, their salaries, tenure, improvement in service, and the like.
11. A study of the present efficiency of general and special supervision, with particular reference to the contribution made by the supervisory corps to the growth and development of teachers.
12. The care of school buildings, including the qualifications, compensation and control of janitors.
13. Apparatus and materials for the purposes of training and instruction (text-books, laboratories, workshops, libraries, schoolroom decorations, etc.).
14. The legal basis of the school system. The relation of the School Department to other departments of the City Government and to the State Legislature.

Such are some of the large questions not included in this study. The merest glance at the list must make it evident that the following pages are not offered as a survey of the Boston school system. A careful study of certain phases of the system has been undertaken, based on specific questions, and the best answers which the committee could make are here given.

Respectfully submitted,

JAMES H. VAN SICKLE.

## SUMMARY.

---

### THE ADMINISTRATION OF THE SCHOOLS.

1. The schools of Boston are administered through several executive offices, each of which is directly responsible to the School Committee and independent in large degree of each other. There is no responsible executive head of the school system.

2. In order to carry out most efficiently and economically the policies which they determine, a school committee must, as do all other lay boards, whether in charge of public or private business, delegate to a responsible executive that authority which can be exercised best only by a professional expert who is able to study the whole problem and to coördinate the activities of all employees. The delegation of this authority to the Superintendent of Schools enables them to fix this responsibility.

3. There is, in the opinion of the committee, no possibility of a maximum of efficiency of economy in the conduct of a school system in which many executive heads work more or less at cross purposes. With the reorganization that is suggested, there becomes possible the achievement of a degree of efficiency commonly enjoyed by well managed public and private business.

### SUPERVISION DISTRICTS.

1. There appears to be no relationship between the number of pupils in average daily attendance and the number of masters employed. Districts occupying the same geographical area should be consolidated and certain very small districts should be combined.

2. A similar discrepancy is found with regard to the number of submasters employed. Moreover, the function of the submaster in the system is less responsible than the very considerable salary he receives would lead one to expect. In practice he is the teacher of a seventh or eighth grade and has certain extra class duties assigned.

3. The scheme of supervision here proposed places in

supervisory charge of all districts having less than 1,000 children in average daily attendance a submaster who has had experience under the direction of a master in one of the larger districts; in all districts having more than 1,000 children in average daily attendance, a master. When the number of children in average daily attendance in a district exceeds 1,500, the master is to be assisted by a submaster, who is to devote all of his time to supervision; and whenever this number exceeds 3,000, the master is to be assisted by two such submasters.

4. The extra class activities now performed by submasters are to be provided for by designating certain upper grade teachers as junior masters, and by continuing the office of first assistant in charge and master's assistant.

5. It is proposed to add to the present supervisory corps five primary supervisors for the sake of furnishing a type of leadership for the lower grades and kindergartens which is not already provided by district supervision.

6. The complete reorganization here suggested provides a much more adequate plan of supervision than is now in operation and would, if put into effect immediately, save more than \$45,000 annually. Instead, however, of putting this scheme into full operation at once, it seems preferable to establish the policy and to determine future appointments upon the basis indicated.

#### THE HIGH SCHOOL SITUATION.

1. The movement toward increasing the number of pupils per teacher which has been in operation since 1912 should not be permitted to go any further, for it must inevitably lower the efficiency of secondary school instruction.

2. We recommend the general organization of junior high schools not only to extend the advantages of this type of school to all parts of the city, but also to reduce school costs. Until the junior high school plan can be put into full operation, we suggest the possibility of securing relief in certain greatly overcrowded high schools through the adoption of a lengthened time schedule.

3. The headship of a department should involve functions of a distinctly executive and supervisory character; only persons capable of rendering this sort of assistance to the head master should be made heads



of departments; and such headships should lapse by rule whenever they become unnecessary, either from the shrinkage of instruction in a given department or from other circumstances.

4. In small high schools the range of elective studies should be restricted and there should be few, if any, heads of departments except titular heads. In all high schools substitute choice of definitely formulated curricula instead of choice from a long list of electives.

#### SPECIAL DEPARTMENTS.

1. The fifteen departments may, to advantage, be regrouped into ten.

2. The work of the nurse should be emphasized rather than that of the physician. Two nurses to one doctor is a satisfactory ratio.

3. Every effort should be made to extend the service of the evening schools and the voluntary continuation schools.

4. We commend the self-supporting basis of administering groups in community centers.

5. The time allowance for manual training and cooking might be reduced to make possible three classes daily for a teacher instead of two. The gain in teacher time may be applied to good advantage elsewhere.

6. Allow pupils in subnormal classes to sell shop products and after deducting cost of materials pay balance to the pupils.

7. Standardize kindergarten rooms and utilize the advice of the department in planning rooms in new buildings and remodeling old buildings. Eliminate the general toilet for kindergarten children.

8. Transfer special kindergarten assistants to regular positions and allow unpaid practice teachers to serve in these positions. Through the saving thus accomplished establish kindergartens for four-year old children in foreign and congested districts.

9. Each kindergarten class should have two sessions, recreation being emphasized in the afternoon session and systematic home visitation by the teachers required.

#### VOCATIONAL EDUCATION.

##### 1. *Pre-Vocational Departments.*

a. These departments should be reorganized as a part of the junior high schools in the seventh, eighth and ninth years.

b. These courses should be elective on the same basis as the other courses in the junior high school.

c. Instruction should be provided in a sufficient number of activities to afford "try-out" experiences to the pupils.

d. Adolescent mental defectives should be cared for in special pre-vocational classes and given a large proportion of time for shop work.

### *2. Compulsory Continuation Schools.*

This work should be continued and given sufficient quarters to meet the needs of the classes.

### *3. Trade School for Girls.*

A further study should be made of factory employment for women, and branches of the school should be established to meet local needs.

### *4. Industrial School for Boys.*

The work should be continued and the plans for expanding the school should be carried out. Efforts should be made to decrease the per capita cost by increasing the output of product for which the school will be credited.

### *5. Part-Time Coöperative Course in the Hyde Park High School.*

The school should be equipped with shops representing the metal-working trades, and a staff of special teachers should be employed. The industrial experiences of the boys in the local shops should be organized. If these steps are taken, the plan should be tried in other high schools where the necessary coöperation can be secured on the part of employers in industrial plants.

### *6. Vocational Guidance.*

Vocational guidance should be continued. A comprehensive study of the vocations should be made.

## VOCATIONAL NEEDS OF BOSTON CHILDREN.

1. The schools of Boston are already providing a large number of boys and girls with vocational education that will enable them to enter the occupations found in their own city and in other cities.

2. It is evident that the number of children receiving training for the manufacturing and mechanical industries

is far below the number of those who will enter this class of employment.

3. On the other hand, the number taking the courses pointing toward professional life is in excess of the actual number who will find their life work in the professions.

4. There is an undoubted deficiency in the number adequately prepared for domestic and personal service, whether paid or unpaid.

#### GENERAL STUDY OF COSTS.

A comparison of the amounts spent for school purposes by a number of different cities affords a useful standard by which to measure the practice of an individual city. Boston's expenditure for schools has been compared with the expenditures of other American cities of more than 250,000 inhabitants. The results of the study are summarized in the following table:

SUBJECT OF COMPARISON.	Number of Cities Compared.	Boston's Rank.
Proportion of total municipal expenditure devoted to schools.	22	17
Expenditure per inhabitant for operation and maintenance of schools.	21	2
Expenditure per \$1,000 of wealth for operation and maintenance of schools.	21	12
Expenditure per pupil in average daily attendance for:		
Permanent improvement of school plant.....	21	14
Operation and maintenance of schools.....	21	4
Items of school operation and maintenance:		
Office of board and other business offices....	21	5
Superintendent's office.....	21	2
Salaries and expenses of supervisors.....	21	5
Salaries and expenses of principals.....	20	11
Salaries of teachers.....	20	4
Stationery, supplies and other instruction expenses.	20	8
Wages of janitors and other employees.....	21	6
Average annual expenditure for fuel.....	21	10
Maintenance — repairs, replacement of equipment, etc.	19	4
Groups under school operation and maintenance:		
Administration.....	21	5
Instruction.....	21	4
Care of school plant.....	21	4
Teachers per 1,000 pupils in:		
Elementary schools.....	21	18
Secondary schools.....	21	20
Median salaries of teachers in:		
Elementary schools.....	15	2
Secondary schools.....	15	4
Median salaries of principals in elementary schools.	15	1

In comparing the expenditures of different cities it is necessary to take into account differences in resources and in educational responsibilities. This has been done by relating the amount spent for schools to total municipal disbursements, to population, to wealth, and to the number of pupils in average daily attendance. As expenditure per pupil is believed to constitute, on the whole, the best standard for judgment, the more detailed comparisons are made only on this basis.

Boston's relative position in the group of cities, as shown by the statistics, may be summarized as follows:

1. In the proportion of total municipal expenditures devoted to the public schools, Boston stands low. According to prevailing standards, the schools are receiving somewhat less than their share of the money that is being spent by the city.

2. Only one city spends more per inhabitant than Boston for the operation and maintenance of schools.

3. On the other hand, Boston's expenditure per unit of wealth for the operation and maintenance of schools is relatively low.

4. In expenditure for the permanent improvement of the school plant per pupil in average daily attendance Boston ranks fourteenth among the 21 cities.

5. Boston's expenditure per pupil for the operation and maintenance of schools is exceeded in but three cities of the 21.

6. Comparative figures have been given for nine of the more important items of operation and maintenance. For all but two of the purposes represented by these items, Boston's expenditures per pupil are relatively high. In expenditure for salaries and expenses of principals and for fuel Boston stands, according to the figures of the reports of the United States Commissioner of Education, about mid-way in the list of cities.

7. In all the cities compared, teachers' salaries constitute the largest single item of disbursement. Boston ranks fourth among 21 cities in the amount spent for this purpose. It is evident that a relatively large expenditure for salaries per unit of attendance may be due to small classes, to high salaries per teacher, or to a combination of these two causes.

8. It appears from the statistics that, in the number of teachers per 1,000 pupils, both in elementary schools and in secondary schools, Boston stands very low in the list of cities — in other words, both in elementary schools and in secondary schools the classes are abnor-

mally large. This, clearly, is a condition which makes for low expenditure per pupil for teachers' salaries, rather than for the high expenditure shown by the comparisons.

9. The explanation of Boston's rank with respect to expenditure for teachers' salaries is found by comparing salaries per teacher. Among 15 cities for which data are available, Boston stands second in median salaries of teachers in elementary schools and fourth in median salaries of teachers in secondary schools.

10. While the tables seem to show that Boston's expenditure for salaries and expenses of principals is relatively small, this apparent result is due to a somewhat unusual distribution of functions in the Boston schools. If certain members of the Boston staff who, in many cities, would be termed principals were so classed by the Boston authorities, Boston's ranking in expenditure for this item would be much higher than it is. In median individual salaries of persons reported as elementary school principals Boston leads all the cities.

11. Expenditures per unit of attendance for operation and maintenance have been grouped, according to function, under three heads: administration, instruction, and care of school plant. Boston stands fifth in the group of cities in expenditure for administration and fourth both in expenditure for instruction and in expenditure for physical care.

Considered in their general bearings, the comparative statistics may fairly be interpreted as showing that, as related to the educational responsibilities of the city, Boston's expenditures for school purposes are liberal. Boston is, however, an exceptionally wealthy city, and for this reason the expenditures for schools do not draw heavily on the resources of the community. For permanent improvements in the school plant Boston has in recent years been spending rather less, relatively speaking, than for operation and maintenance. An examination in detail of disbursements for the different purposes of operation and maintenance discloses a well planned distribution of expenditures — no one class of activity seems to be either unduly subordinated to others or unduly favored.

#### THE CONSTRUCTION OF SCHOOL BUILDINGS.

1. There are three common units for comparing the cost of school buildings. These are the cost per pupil,

the cost per class room and the cost per cubic foot. Satisfactory comparisons should take into account all these units and, in addition, consider the special accommodations provided.

2. The administration of schoolhouse construction is arranged for in some cities by employing private architects to prepare plans for each new building. In other cities contracts are made with reliable firms of competent architects to undertake schoolhouse construction over a term of years. The most satisfactory arrangement is for the city to employ a schoolhouse architect, together with engineers, draughtsmen and inspectors, as part of the permanent staff of the department of education.

3. The City of Boston employs no one of these methods, but instead has an independent schoolhouse commission, appointed by the Mayor, to take charge of repairs and replacements in old buildings and to purchase sites and construct all new buildings.

4. A comparison has been made of the costs of nine fireproof and nonfireproof elementary school buildings in Boston and of groups of fireproof elementary school buildings of recent construction, numbering seven in St. Louis, eleven in Cleveland, nine in Newark, and ten in Detroit. For all these buildings cost data have been secured on a uniform basis.

5. The comparisons show that costs per class room range from less than \$5,000 in Detroit to more than \$9,000 in St. Louis, with Boston rooms costing more than \$7,100 in nonfireproof and nearly \$7,900 in fireproof buildings.

6. In the matter of cost per cubic foot the Boston buildings are the most expensive of all those compared.

7. In the average cost per pupil the Boston fireproof buildings are the most expensive of all, while the non-fireproof ones are more expensive than the fireproof ones in Detroit, Newark and Cleveland.

8. The Boston fireproof buildings provide a smaller proportion of special rooms than do those in St. Louis, Cleveland and Detroit.

9. Computations showing the average cost per room, including class rooms and special rooms, show that the Boston buildings are the most expensive of all.

10. The expenses of plans, specifications and inspection are far greater in Boston than in any of the other cities.

11. Taking all factors into consideration it appears that Boston has been spending more for second-class, nonfireproof buildings than Cleveland, Detroit and Newark have been spending for first-class, fireproof buildings.

12. The committee is convinced that the type of building offered by the Schoolhouse Department as a type of the new fireproof buildings to be erected in Boston falls far short of providing satisfactory educational accommodations of a truly modern sort.

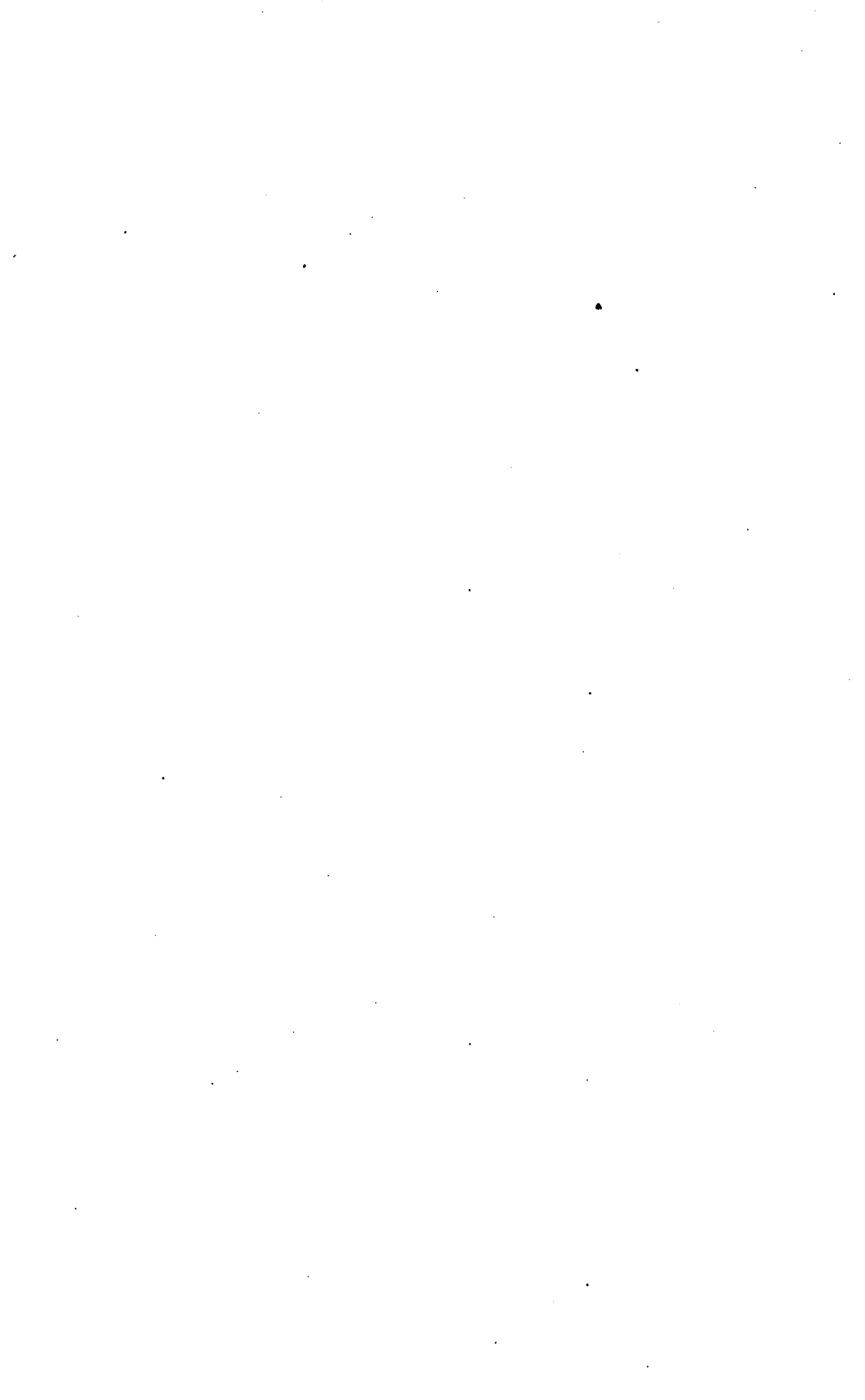
13. Boston is faced by an unusually difficult problem in the matter of modernizing its old school buildings, of which it has a very large number. The committee has been unable to find that the Schoolhouse Commission is proceeding on any adequate, continuing policy in this matter.

14. The committee finds the published reports of the Schoolhouse Department inadequate and inaccurate.

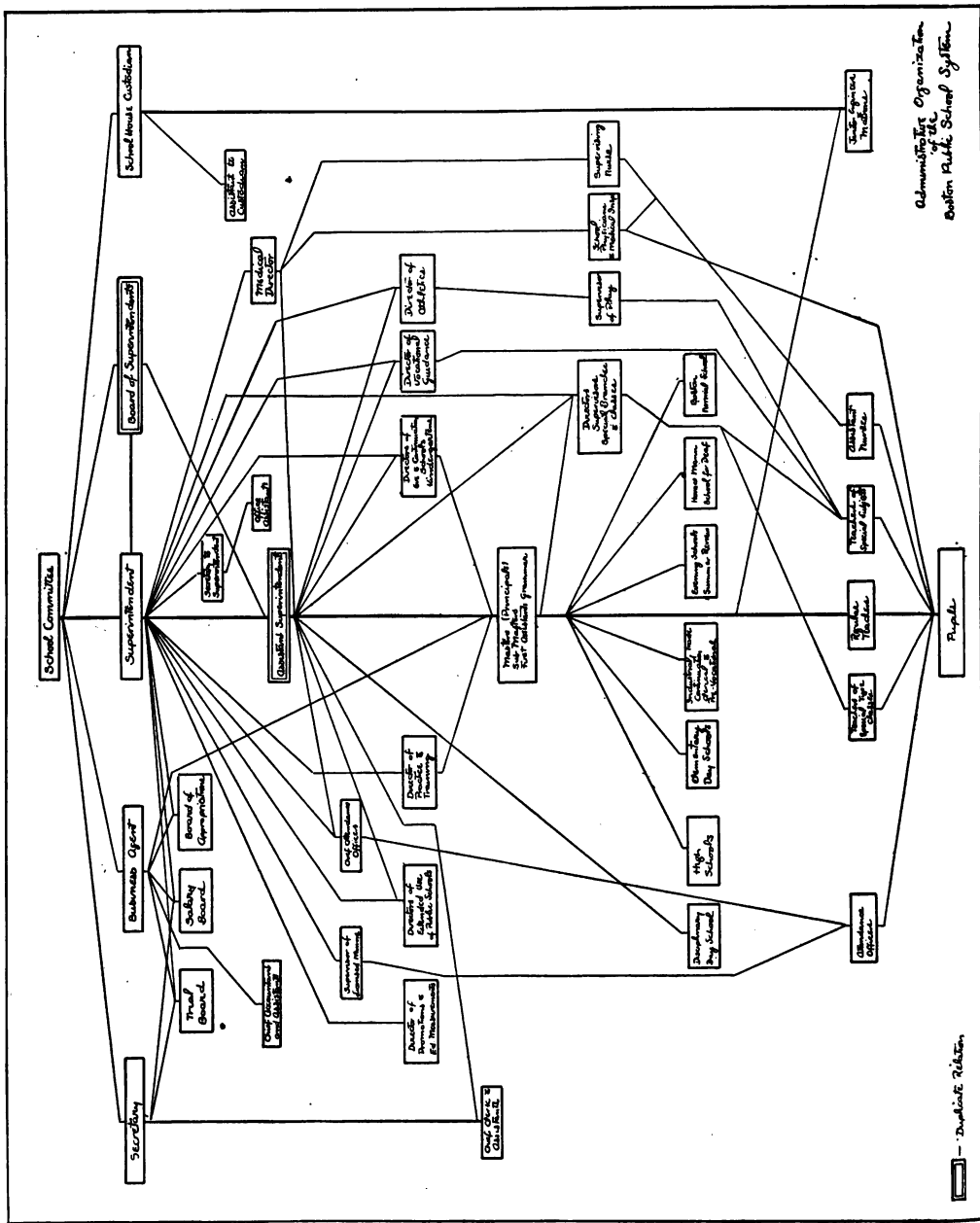
15. The committee finds that the figures published by the Schoolhouse Department and purporting to show per capita costs of Boston school buildings must be increased by nearly one third in order to furnish figures comparable with those showing corresponding costs in other cities.

16. The committee is unanimously of the opinion that its estimates of the actual costs of the Boston school buildings should not be considered too high unless proved so by a thorough audit of the books of the Schoolhouse Department.

17. The committee finds that the facts reviewed demonstrate that Boston's experiment in erecting school buildings through the agency of the independent Schoolhouse Department has not proved successful. It holds that economical and satisfactory results in this work will not be secured until control of these operations is vested in the educational authorities, as it is in other progressive cities. The school officials who are charged with the duty of educating the children are the ones who should decide what educational accommodations shall be provided in the buildings, where they shall be located, how many and what rooms they shall contain, and what equipment shall be installed.







## CHAPTER I.—THE REORGANIZATION OF THE ADMINISTRATION OF SCHOOLS.

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### THE PRESENT SITUATION.

The schools of Boston are, in so far as the committee has been able to determine, administered through several executive offices, each of which is directly responsible to the School Committee, and independent in large degree of each other. In the study which has been made of this problem, information was secured, first, from a study of the proposed revision of the rules of the School Committee; second, from reports made by the Superintendent, Assistant Superintendents, Business Agent, Secretary and Schoolhouse Custodian, in which each was asked to indicate as concretely as possible the nature of the activity of his office, to justify any increase in cost occurring during the past five years, to indicate the relationship of his office to the other executive offices of the School Committee, and to suggest any plan of reorganization which might make for greater efficiency; third, from conferences with members of the School Committee, Superintendent, Assistant Superintendents, Business Agent, directors, masters, and teachers; and fourth, from observations made in attendance upon a conference of the School Committee and upon a meeting of the Board of Superintendents, together with an analysis of the minutes of eleven meetings of the Board of Superintendents.

The situation can be made clearest, possibly, by representing graphically the organization as it at present exists, indicating by lines drawn the responsibility of each employee of the School Board to the several executive officers, and the relationships of these officers to each other. This graph, which is given below, is based not only upon a careful study of the proposed revised rules of the School Committee, but upon the information collected from the reports made and conferences held with various employees of the School Committee. It appears to members of our commission to represent not only the organization proposed by the new rules, but also the present practice.

From all the testimony presented, and from all of the observation made by members of the committee, it appears that there is no responsible executive head of the school system. The School Committee, as a matter of practice as well as by rule, have divided among the Superintendents of Schools, the Board of Superintendents, the Business Agent, the Secretary, and the Schoolhouse Custodian, the control of various parts or aspects of the school system. The proposed revised rules state specifically that "the Superintendent shall be the executive officer of the Board in all matters relating to instruction and discipline in the schools"; that "the Board of Superintendents shall give written opinion on any question when so required" . . . "by the Board or any sub-committee thereof; and may present to the Board recommendations on its own initiative whenever occasion warrants"; that "the Board of Superintendents shall approve books of reference and educational material issued in the schools, except dictionaries, encyclopedias, and atlases, in accordance with the regulations"; and that the Board of Superintendents shall act as a board of examiners; that "the Business Agent shall be the executive officer of the Board in charge of the accounts, receipts of income, preparation of pay rolls, purchase, storing, and distribution of supplies, including printing, postage, and the transportation of pupils"; that "requisitions for books, printing, postage, fuel, and materials of every description required for use by any officer, or in any School Department, shall be subject to his approval. He shall fill such requisitions as he shall approve, within the limits of the appropriations made." . . . "He shall include" in his reports submitted to the Board "such recommendations tending to a more economical expenditure of appropriations as he may deem expedient." . . . "He shall consider and report upon any proposition relating to an extension of or change in the school system involving additional expense, or a contemplated expenditure for which provision has not been made in the annual appropriation order, before action thereon shall be taken"; that "the Secretary shall be custodian of the School Committee building"; that "he may issue and cancel permits for the use of the school premises for other than the regular work of the schools in accordance with the regulations"; that "the Schoolhouse Custodian shall be the executive officer of the

Board in all matters relating to the care and custody of the land and buildings used for school purposes, except the School Committee building"; that "he shall exercise general supervision and control over the janitors and their assistants, and matrons employed in the several school buildings, except the School Committee building; see that the rules and regulations for their government are enforced, and report to the Board, in writing, cases of negligence or inefficiency on the part of such employees"; that he shall appoint, transfer, and remove janitors and matrons, and suspend janitors and matrons.

In the quotations from the proposed revised rules given above, there is nothing which seems to violate in any way the present practice of the executive office. No attempt has been made in the quotations given to present the case completely, but, rather, to indicate by the selections quoted, or statements made in accord with the rules, that there are actually four executive officers and one executive Board coördinate in authority by virtue of the duties which they perform and the authority vested in them by the rules of the School Committee. To this list of executive authorities might be added the Trial Board, upon which the Secretary, Business Agent, and a school janitor sit as a judicial body to consider charges and complaints preferred against any janitor or matron which may be referred to it by the Board; the Salary Board, which consists of the Superintendent, the Business Agent, and the Secretary, who annually consider the salaries of all persons employed under the various titles in the administrative offices of the Board; and the Board of Apportionment, which consists of the Superintendent, two assistant superintendents assigned by the Superintendent, and the Business Agent, who have "general control of the appropriations made by the Board for supplies and incidentals," and who may make such transfers as it may deem expedient within such appropriations.

In the report submitted by individual members of the Board of Superintendents, it appears that the majority of the members of this Board consider themselves important as a Board in the development and control of the school system. They suggest that it is through this Board that educational policies are advocated and put into operation; that this body studies educational problems and reports directly to the School Committee;

and that it should be considered as the central unifying force in the school system. There is apparently little doubt in the minds of the members of this group concerning the responsibility and authority vested in them as an executive body.

The Business Agent, as has already been indicated in the quotations from the rules, is actually an executive officer responsible directly to the School Committee. His authority, however, in the minds of many teachers, masters and executive officers is much greater than would appear upon reading the rules. He can, subject to appeal from his decision, determine educational policy by refusing to purchase the books which are needed, and which could be purchased within the appropriation allowed to a particular school or department. He can interfere with the development of a particular part of the school system through refusing to buy supplies which are needed, on account of an increase in cost, or because he doubts the wisdom of adding the particular sort of supply or equipment which is desired. He may interfere with the efficiency of a particular school or department through a change in equipment which may make for economy, while at the same time handicapping pupils whose earning capacity will depend upon having experience with equipment not allowed by him in the schools. It appears in every case that there is an opportunity for an appeal from the decision of the Business Agent to the Board of Apportionment, and finally to the School Committee. In practice, however, assistant superintendents, directors, masters and heads of departments are apt to refrain from making such appeals, both on account of the time involved, and because of a perfectly natural desire to maintain amicable relationships with an important executive officer of the School Committee. Testimony has been given which goes to show that in many cases distinctly educational policy has actually been interfered with by the Business Agent, by virtue of the authority vested in this office.

The Secretary has, in so far as the rules indicate his position, little executive authority. It appears, however, to be the policy of the School Committee as at present constituted to depend upon the Secretary, the Business Agent, and one or more assistant superintendents for advice, which ought, in a well organized school system, to be required of their chief executive officer.

The Schoolhouse Custodian is given such large executive authority in dealing with janitors and matrons as to provide for a minimum of responsibility or authority by the Superintendent. In an inspection of school buildings it seemed apparent to members of the commission that conditions were tolerated which must have been reformed immediately were the Schoolhouse Custodian responsible to the Superintendent of Schools.

#### PROPOSED REORGANIZATION.

The proposed reorganization of the administration of schools which follows is suggested in the firm belief that greater efficiency will be made possible, and that in the long run such efficiency will make for economy in administration. The proposals which are made, and the criticism of the present organization which has already been indicated, are not intended in any way to reflect upon the integrity or the efficiency of the employees of the School Committee. Indeed, we have been impressed in our study by the individual efficiency of the Superintendent, members of the Board of Superintendents, Business Agent and Secretary. The difficulty is not with the individuals concerned, but, rather, with an organization which is cumbersome and which renders impossible the highest degree of efficiency. As the situation is at present, a very large proportion of the time and energy of executive officers must be spent in conferences in which matters are settled upon a personal basis which ought to be determined by the chief executive officer of the school system, by virtue of the authority vested in him by the School Committee, and in the light of the responsibility which he alone should have. In passing, it might be noted that the lack of an administration building, in which all of the offices of the School Committee might be located, is in itself a handicap which should be overcome at the earliest possible moment by the erection and equipment of a suitable building.

The final authority for the control and development of the school system of Boston is (except for buildings, which are in charge of the Schoolhouse Commission) vested in the School Committee. The management of this great public service may be conducted most efficiently only upon that basis of organization which has been found to make for efficiency in private business.

We are coming in our consideration of governmental problems to accept as our final criterion the very simple dictum, "Does it work?" From the testimony which has been given to the committee, and from such observations as they have been able to make, it seems entirely clear that the present organization not only invites but actually promotes inefficiency. As has already been indicated, the time and energy of executive officers is wasted in making adjustments on a personal basis. The Board of Superintendents, the Business Agent, the Secretary and the Schoolhouse Custodian may and do operate independently. The Superintendent of Schools, who is the expert employed by the School Committee, and who receives the largest salary paid to any employee, has neither the responsibility nor the authority which should be vested in a chief executive.

The School Committee may properly be considered as exercising the responsibility of a Board of Directors responsible to their constituency, the citizens of Boston. They must pass upon all matters which have to do with the maintenance and development of the public school system. As laymen they cannot to advantage and should not therefore attempt to administer the school system. Efficiency in administration demands that they choose a superintendent of schools as their chief executive officer, who should, by rule of the School Committee, and in the exercise of his own judgment, delegate to other executive officers those duties which could best be performed by them. All other executives should report to the Board of Education through him, except in cases of an appeal from the decision of the Superintendent, in which the subordinate executive or any other employee should carry his case before the School Committee. Under this arrangement, all questions of policy for the schools not determined by rule or regulation of the School Committee, and not of sufficient significance to be brought before them for decision, should be decided by the Superintendent and reported to the committee. In the following paragraphs will be indicated as definitely as possible what the proposed reorganization would mean with respect to the relationships existing among the present executive officers of the School Committee.

## THE BOARD OF SUPERINTENDENTS.

The Board of Superintendents should, as a Board, be abolished. An analysis of eleven meetings of this Board shows that four of them were given over wholly to matters which should be decided by an examining board or committee; that among the other matters discussed, such as courses of study, methods of instruction, examination of pupils, selection of text and reference books, determination of educational materials, requests for appropriation of funds, and the like, each and every matter might better have been reported directly to the Superintendent by the assistant superintendent in charge, and either decided by him or discussed with other assistant superintendents as he saw fit. Some indication of the relative importance of the various items brought before the Board in the eleven meetings analyzed is indicated by the fact that in sixty-one cases matters had to do with the qualifications of teachers, and in thirty-six cases all other matters listed above were considered. The formal meeting of the Board of Superintendents consists of reports of conferences which had been held between the Superintendent and individual members of the Board, and of reports of work done by virtue of an assignment by the Superintendent to individual members of the group. In so far as this Board operates to oppose or to interfere with the development of the Superintendent's program, and to the degree that it is considered as in a position of coördinate authority with the Superintendent of Schools, there is a divided authority and responsibility and an opportunity for inefficiency in management.

The chief executive officer of the Board of Education — the Superintendent of Schools — should nominate the assistant superintendents. His efficiency in very large measure is determined by having as his assistants men who will work with him for the realization of his plans and ideals in accordance with the policies adopted by the School Committee. The relationship between the Superintendent of Schools and one of his assistants should be such as to place him in position of direct responsibility to the Superintendent. Under such conditions an assistant superintendent, to the degree that



he is efficient, increases the efficiency of the Superintendent as the chief executive officer, and at the same time the efficiency of the whole system.

The assistant superintendents should be placed in charge of the work of examining and certifying teachers. It does not, however, seem necessary to pay salaries as large as those paid to assistant superintendents of schools in order to carry on much of the routine work. If an examining board were constituted with the assistant superintendents in charge, and with less highly paid assistants responsible for preparation of the questions and the marking of papers, the time and energy of these highly paid professional specialists might, it seems to the committee, be used to greater advantage in the general supervision and administration of the school system.

#### THE BUSINESS AGENT.

The Business Agent should continue to be in charge of accounts, receipts of income, preparation of the pay rolls, purchase, storing and distribution of supplies, including printing, postage and the transportation of pupils. He should keep a complete set of accounts of the expenditures of the Board, prepare pay rolls, examine all bills of expenditure, certify as to their correctness in all respects and prepare requisitions on the City Auditor for the payment of pay rolls and accounts which have been approved by the Board. He should report monthly to the Superintendent of Schools on disbursements and budget balances in such form as the Superintendent may require. He should also report to the Superintendent prior to the making of the annual budget concerning the amount of money available for the period for which the budget is prepared.

The Business Agent should not have authority to pass upon requisition for books, printing, postage and educational materials required for use in the school system, except as such authority may be delegated to him by the Superintendent, and whenever the purchase of books or educational supplies or equipment of any sort is approved by the Superintendent, they should, within the appropriation allowed, be provided by the Business Agent. All recommendations from the Business Agent to the School Committee should be made through the office of the Superintendent. The annual

budget should be prepared by him, in conference with the Superintendent of Schools, and should be submitted to the School Committee through the Superintendent's office.

The plan given above for the reorganization of the executive offices which places the Business Agent in a position subordinate to the Superintendent is not intended to deny to the Business Agent the right to report to the School Committee, when, in his judgment, expenditures are approved by the educational authority which involve wastefulness or extravagance. The suggestion that the budget for the year be prepared by the Superintendent in coöperation with the Business Agent provides for the utilization of the special knowledge which he possesses. In this case, as well as in the other mentioned above, the Business Agent would have the right and the obligation to report to the School Board in case there was a disagreement between them involving any considerable sum of money.

To state the matter very briefly, the Business Agent should conduct the affairs of his office entirely under the general direction of the Superintendent of Schools, and with distinct responsibility to him, and should never be permitted to determine any educational policy by virtue of his activity as an accounting, purchasing or distributing agent. His office, under the plan of the reorganization suggested, would not be less important than it is at present, except for the fact that he would not be an executive officer of the Board, coördinate in authority with the Superintendent, but rather an executive subordinate to the chief executive officer charged with large responsibility, and having by virtue of his office an opportunity to make a large contribution to the efficiency of the school system.

#### THE SECRETARY.

The Secretary of the School Committee should be, in fact as well as in name, a secretary. He should not be called upon to exercise any executive authority. As Secretary to the School Committee he should report to the Superintendent of Schools for his consideration all business coming to his office. In many cases there would be no need for suggestion or comment by the chief executive. In other cases, review would be necessary in order to make for the highest degree of efficiency

for the whole school system. The Superintendent of Schools should, with the coöperation of the Secretary and of all other officers who report to him, present all business to the Board, whether of public meetings or in conferences.

#### SCHOOLHOUSE CUSTODIAN.

Such executive authority as is at present exercised by the Schoolhouse Custodian should be vested in him only as delegated by the Superintendent of Schools, and his action in any of these matters should be subject to review and to final decision by the Superintendent, subject only to appeal to the School Committee.

#### BOARD OF APPORTIONMENT.

If the reorganization suggested above is accomplished the Board of Apportionment should be abolished. The Superintendent of Schools, as the responsible executive head of the school system, would find occasion to consult with assistant superintendents, Business Agent and directors concerning the control of moneys provided for supplies and incidentals, and with respect to transfers to be made within the amount allowed. The Business Agent would still, by virtue of his office, report to the Superintendent concerning the balance available for each school or district and should inform the Superintendent if any expenditures under any item shall have equalled or exceeded the amounts allowed. The Superintendent, with such consultation upon the part of assistant superintendents, Business Agent or others as he may desire, should apportion annually the income of the Bowdoin and Gibson Funds among the schools entitled to share therein.

It is of the utmost importance that the Board of Apportionment be continued unless the Business Agent be made directly responsible to the Superintendent of Schools as the chief executive officer of the Board. Under the existing conditions, in which the Superintendent of Schools and the Business Agent are executive officers, each of whom is directly responsible to the Board, the Board of Apportionment makes possible, in those cases in which appeals are made from the decision of the Business Agent with respect to the buying of books or supplies, adjustments in the light of educational needs and the development of educational policies.

### THE SALARY BOARD.

The Salary Board should be abolished. The Superintendent of Schools should recommend to the School Committee changes in salaries of persons employed under various titles in the administrative offices of the committee, and would undoubtedly, in the making of these recommendations, consult the heads of departments working under his direction. If any injustice were done, there would always be the possibility of appeal to the School Committee.

### SUMMARY OF ADMINISTRATIVE REORGANIZATION RECOMMENDED.

The School Committee are charged with the responsibility of providing an efficient system of public education for the City of Boston. They must determine all questions of policy for the development of public education, adopt a budget within the limit of the moneys provided by law for the support of the schools, and enact rules and regulations for the conduct of the school system. They have the final authority, and are the court of last resort. In order to carry out most efficiently and economically the policies which they determine they must, as do all other lay boards, whether in charge of private or public business, delegate to a responsible executive that authority which can be exercised best only by a professional expert who is able to study the whole problem and to coördinate the activities of all employees. The delegation of this authority to the Superintendent of Schools enables them to fix responsibility. The Superintendent in his turn, accepting such authority and responsibility, may be expected to secure from each subordinate officer or teacher the largest possible contribution to the development of the school system only as his position is recognized by them and to the degree that he is supported by the School Committee. Every such responsible executive delegates authority and responsibility to his subordinates to just the degree in which they are willing to coöperate with him and their colleagues in the carrying out of the policies determined by the lay board. The responsible executive may make mistakes, but his orders or decisions are always subject to appeal to the School Committee. If it were discovered that such an executive officer was

frequently in the wrong, or that he was incompetent, it would be within the province of the lay board to remove him and to provide a more efficient manager.

A somewhat popular fallacy that matters requiring large executive and administrative ability cannot be satisfactorily placed in the hands of professional educators is apparently based upon the belief that educators have had small experience with administrative problems and are not, therefore, skillful executives. There is no generalization concerning public executives more completely false to the facts in the case than is this. The city Superintendent of Schools is in a large city the one city official commonly chosen from the country at large. In a very real sense the Superintendent of Schools of our great cities represent the survival of the fittest among educational executives. Other city officials are commonly chosen from the localities in which they are employed. In private business the choice of executives is usually not even from among men of an entire city, but rather from the employees of a single business. Only in the school superintendency do we find in the position of largest responsibility men chosen from the entire country on the basis of their success in executive positions in smaller localities. A glance at the figures, showing the number of men engaged in different grades of educational positions, will indicate that the school superintendent in the large cities is commonly chosen on the basis of an extensive selection unparalleled in any other calling. These figures are substantially as follows:

Superintendents in cities of over 1,000,000 inhabitants.....	3
Superintendents in cities of from 250,000 to 1,000,000.....	16
Superintendents in cities of from 50,000 to 250,000.....	90
Superintendents in cities of from 10,000 to 50,000.....	492
Superintendents in cities of from 5,000 to 10,000.....	629
Public school teachers in all localities.....	566,000

The men who pass through this selective process from positions as teachers to principalships, to superintendencies in villages, to those in towns, to those in small cities, and finally, to those in large cities arrive in their ultimate positions because they possess in rare combination educational ability and executive ability. In the smaller communities they personally transact the business as well as the educational affairs of the school systems. Unless they are notably successful in dealing with the matters of educational business they are not

selected for positions in the cities of the next larger size. When they have reached the cities of the largest size we may be very certain that they have successfully and successively demonstrated marked ability in the transaction of educational business.

It is a most short-sighted policy which takes away from these men the general control of the school system in our large cities in order to provide for independent business executives, boards of superintendents, or other executives coördinate in authority with the Superintendent.

Whatever may be the position of the Superintendent of Schools, as determined by the rules of the School Committee, it cannot be denied that in the last analysis the teachers in the school system, the press of the city and the general public hold the Superintendent responsible for the failures of the school system, and give him some credit for that part of the work which is considered successful. If this responsibility, clearly conceived by the public, is denied to the Superintendent of Schools by the School Committee, he is placed in the unfair position of lacking authority commensurate with his responsibility.

With the system of reorganization which has been proposed above, the time and energy of the Superintendent of Schools and of other executive officers now wasted in group and individual conferences upon unimportant matters would be saved for the consideration and execution of the larger and more important plans for the development of the school system. There is, in the opinion of the committee, no possibility of a maximum of efficiency or of economy in the conduct of a school system in which many executive heads work more or less at cross purposes. With the reorganization that is suggested there becomes possible the achievement of a degree of efficiency commonly enjoyed by well managed public and private business.

CHAPTER II.—REORGANIZATION OF DISTRICT  
SUPERVISION OF ELEMENTARY SCHOOLS  
WITH PROVISIONS FOR AN INCREASE IN  
EFFICIENCY AND A SAVING IN COST.

The supervision of elementary schools is organized upon the basis of geographical units called districts. In each of ten of these districts there are two masters devoting their whole time to supervision. For each of twenty-nine districts having an average daily attendance of more than a thousand pupils there is one master. For each of twenty districts having an average daily attendance of less than a thousand pupils there is one master. From the figures of attendance which are indicated in a table given below the reappears to be no relationship between the number of pupils in average daily attendance and the number of masters employed under the present system. For example, the Bigelow-Shurtleff, Hart-Gaston, Dwight-Everett, Sherwin-Hyde and Agassiz-Bowditch Districts all support two masters, while the Lincoln, Mather, Holmes, Adams, and Wells Districts, each of which has a larger average daily attendance than any one of those just mentioned, have one master each.

A similar discrepancy is found with respect to the number of submasters at present employed. The Bigelow-Shurtleff District, with an average daily attendance of 1,811 children, has two submasters, while the Mather with 2,054 and the Wells with 2,046 children in average daily attendance have one submaster each. There are doubtless conditions to be met and traditions which have become established in the organization of the several districts which account for the assignment of masters and submasters that have been made. The discrepancies which appear from the standpoint of the organization of a system of supervision are due, it seems to us, in considerable measure, to a misapprehension concerning the function of submasters. In practice the submaster teaches a seventh or eighth grade, and has assigned certain other extra class duties, for which a very considerable increase in salary is paid. He does not, however, by virtue of these duties, or on account of the larger salary, become a supervisory officer.

The scheme for supervision which we propose places a master in charge of all districts having more than a thousand children in average daily attendance, and pro-

vides for his assistants in supervising the district one submaster, who is to devote all of his time to supervision whenever the number of children in average daily attendance exceeds 1,500, and two submasters whenever this number exceeds 3,000. For the districts having less than a thousand children in average daily attendance it is proposed to provide for supervision by a submaster who has already had experience under the direction of a master in one of the larger districts. The extra class activities now performed by submasters are provided for by designating certain upper grade teachers as junior masters and by continuing the office of first assistant in charge and master's assistant.

Under the revised scheme the salary schedule would read as follows: Junior masters from \$1,212 to \$1,500; first assistants in charge from \$1,212 to \$1,500; master's assistants from \$1,212 to \$1,500; submasters at work in the larger districts under the direction of a master, \$1,500 to \$2,000; submasters in charge of a small district, \$2,000 to \$2,340; master, \$2,580 to \$3,420.

The plan of reorganization proposed will allow for twelve more persons actually engaged in supervision than the present organization provides, while at the same time reducing the cost. There will be provided, as well, a scheme for promotion which will make it possible to select the abler teachers for supervisory work, and to promote them from junior master, first assistant or master's assistant having extra class duties, to the position of submaster working under the direction of a master, to the position of submaster in charge of a small district, and finally to the position of master in charge of a district.

The suggestion concerning the opportunities for promotion are not meant in any way to indicate that it is desirable to fill master's positions only by promoting from the Boston school system. On the other hand, it is distinctly urged that men and women from other school systems be elected to the position of submaster and master from time to time, in order to introduce the new points of view which may be expected from those who have been trained in other school systems.

It is proposed to add to the present supervisory corps five primary supervisors for the sake of furnishing a type of leadership for the teachers of the lower grades and kindergartens which is not already provided by district supervision. The complete reorganization here suggested, and as indicated in the table which is given



below, provides, in the judgment of the committee, a much more adequate plan of supervision than is now in operation, and would, if put into effect, immediately save more than \$45,000 annually.

It is not proposed, however, that this scheme be put into effect at once. It seems preferable to establish the policy and to determine future appointments upon the basis indicated.

By the time this program becomes effective over the whole school system, due to the increase in the school population and number of schools, the saving will greatly exceed that which is calculated upon the basis of the present situation.

The plan of supervision which we have proposed is not intended to interfere in any way with a consolidation of districts which might be brought about to advantage upon recommendation of the Superintendent of Schools. Such consolidations as might be effected would in no way interfere with the general plan for the organization of supervision which we have proposed. A more extended study of the problem would, we believe, show the desirability of consolidating districts, and would result not only in a saving in cost but also in an increase in the efficiency of supervision.

The table below gives the reorganization proposed, together with the present and promised cost.

#### REORGANIZATION OF THE DISTRICT SUPERVISION WITH PROVISION FOR AN INCREASE IN EFFICIENCY AND A SAVING OF COST.

FIFTY-TWO SUBMASTERS ARE MORE THAN THIRTY-FIVE YEARS OF AGE AND TEACHING SEVENTH OR EIGHTH GRADES; THIRTY-ONE ARE THIRTY-FIVE YEARS OF AGE OR UNDER AND TEACHING.

##### Districts Supporting Two Masters — Same Geographical Area.

DISTRICTS.	PRESENT ORGANIZATION.			PROPOSED ORGANIZATION.		
	* Number Pupils in Average Attendance.	Masters.	Sub-masters.	Masters.	† Sub-masters.	Junior Masters.
Eliot-Hancock .....	4,244	2	3	1	2	3
Wendell Phillips-Bowdoin,	2,433	2	3	1	1	3
Rice-Franklin .....	2,064	2	1	1	1	1
Lawrence-Norcross .....	1,961	2	1	1	1	1
Bigelow-Shurtleff .....	1,811	2	2	1	1	2
Thomas N. Hart-Gaston..	1,920	2	2	1	1	2
Dwight-Everett .....	1,563	2	2	1	1	2
Sherwin-Hyde .....	1,767	2	2	1	1	2
Dudley-Dillaway .....	2,445	2	3	1	1	3
Agassiz-Bowditch .....	1,680	2	1	1	1	1
Totals .....		20	20	10	11	20

\* From School Document No. 12, 1915, pages 9-10.

† Submaster assigned when number of children reaches 1,500. An additional submaster allowed when number of children exceeds 3,000.

**District with One Master and more than 1,000 Pupils  
in Average Attendance.**

DISTRICTS.	PRESENT ORGANIZATION.			PROPOSED ORGANIZATION.		
	Number Pupils in Average Attendance.	Masters.	Sub-masters.	Masters.	Sub-masters.	Junior Masters.
1. Abraham Lincoln...	2,053	1	2	1	1	2
2. Bennett.....	1,158	1	1	1	.....	1
3. Chapman.....	1,042	1	1	1	.....	1
4. Comins.....	1,071	1	1	1	.....	1
5. Dearborn.....	1,715	1	2	1	1	2
6. Edward Everett....	1,355	1	1	1	.....	1
7. Elihu Greenwood...	1,061	1	2	1	.....	2
8. Emerson.....	1,177	1	1	1	.....	1
9. George Putnam....	1,524	1	1	1	1	1
10. Henry L. Pierce....	1,370	1	1	1	.....	1
11. Hugh O'Brien.....	1,464	1	2	1	.....	2
12. John A. Andrew....	1,197	1	1	1	.....	1
13. John Winthrop....	1,256	1	1	1	.....	1
14. Lewis.....	1,801	1	2	1	1	2
15. Longfellow.....	1,093	1	1	1	.....	1
16. Lowell.....	1,093	1	1	1	.....	1
17. Mary Hemenway...	1,526	1	2	1	1	2
18. Mather.....	2,054	1	1	1	1	1
19. O. W. Holmes.....	2,709	1	3	1	1	3
20. Phillips Brooks....	1,423	1	2	1	.....	2
21. Quincy.....	1,080	1	2	1	.....	2
22. Roger Wolcott....	1,537	1	1	1	1	1
23. Samuel Adams....	2,071	1	1	1	1	1
24. Theodore Lyman...	1,222	1	1	1	.....	1
25. Thomas Gardner...	1,236	1	2	1	.....	2
26. Ulysses S. Grant....	1,084	1	1	1	.....	1
27. Washington.....	1,561	1	2	1	1	2
28. Wells.....	2,046	1	1	1	1	1
29. William E. Russell..	1,112	1	1	1	.....	1
Totals.....		29	41	29	11	41

**DISTRICTS WITH FEWER THAN 1,000 CHILDREN IN AVERAGE  
ATTENDANCE OUTSIDE OF CONSOLIDATED DISTRICTS  
AND EXCLUSIVE OF THE MARTIN SCHOOL, WHICH IS  
THE PRACTICE SCHOOL FOR THE NORMAL SCHOOL.**

DISTRICTS.	PRESENT ORGANIZATION.			PROPOSED ORGANIZATION.	
	Number Pupils in Average Attendance.	Masters.	Sub-masters.	Sub-masters.	Junior Masters.
1. Blackinton.....	606	1	1	1	1
2. Bunker Hill.....	688	1	1	1	1
3. Gibson.....	803	1	1	1	1
4. Edmund P. Tileston.....	640	1	1	1	1
5. Frothingham.....	826	1	1	1	1
6. Prince.....	795	1	1	1	1
7. Harvard.....	769	1	1	1	1
8. Henry Grew.....	555	1	1	1	1
9. Jefferson.....	599	1	1	1	1
10. John Cheverus.....	643	1	1	1	1
11. Minot.....	580	1	1	1	1
12. Oliver H. Perry.....	822	1	1	1	1
13. Prescott.....	751	1	1	1	1
14. Francis Parkman.....	609	1	1	1	1
15. Charles Sumner.....	996	1	1	1	1
16. Frederic W. Lincoln.....	803	1	2	1	2
17. Gilbert Stuart.....	882	1	1	1	1
18. Robert G. Shaw.....	935	1	1	1	1
19. Warren.....	977	1	1	1	1
20. Washington Allston.....	860	1	1	1	1
Totals.....		20	21	20	21

## PRESENT MAXIMUM COST OF SUPERVISION.

	Salary.	Total Salaries.
<b>10 Consolidated Districts, same Geographical Area, Having Two Masters.</b>		
* 20 masters . . . . .	\$3,420	\$68,400
† 20 submasters . . . . .	2,340	46,800
<b>29 Districts with more than 1,000 Pupils in Average Daily Attendance Having One Master.</b>		
* 29 masters . . . . .	\$3,420	\$99,180
† 41 submasters . . . . .	2,340	95,940
<b>20 Small Districts with Fewer than 1,000 Pupils Having One Master.</b>		
* 20 masters . . . . .	\$3,420	\$68,400
† 21 submasters . . . . .	2,340	49,140
Total number of persons, 151. Costing . . . .		<u>\$427,860</u>

\* Number of persons actually engaged in supervision, 69.

† Number of persons actually engaged in teaching, 82.

## PROPOSED MAXIMUM COST OF SUPERVISION.

	Salary.	Total Salaries.
<b>10 Consolidated Districts, same Geographical Area, Having Two Masters.</b>		
* 10 masters . . . . .	\$3,420	\$34,200
* 11 submasters . . . . .	2,000	22,000
† 20 junior masters (in place of submasters teaching),	1,500	30,000
<b>29 Districts with more than 1,000 Pupils in Average Daily Attendance.</b>		
* 29 masters . . . . .	\$3,420	\$99,180
* 11 submasters . . . . .	2,340	25,740
† 41 junior masters . . . . .	1,500	61,500
<b>20 Districts with Fewer than 1,000 Pupils in Average Daily Attendance.</b>		
* 20 submasters (in charge of small districts) . . .	\$2,340	\$68,400
† 21 junior masters (in place of submasters now teaching) . . . . .	1,500	31,500
* 5 primary supervisors . . . . .	2,000	10,000
Total number of persons, 168. Costing . . . .		<u>\$382,520</u>
* Number of persons actually engaged in supervision . . .		86
† Number of persons actually engaged in teaching . . .		82
Number of persons added . . . . .		17
Number added to those actually engaged in supervision, .		17
Present cost . . . . .		\$427,860
Proposed cost . . . . .		<u>382,520</u>
Saving . . . . .		<u>\$45,340</u>

The reorganization of supervision proposed can be best accomplished, we believe, in the manner indicated by the following table dealing with typical situations:

#### LARGE DISTRICTS.

<b>Present Organization.</b>	<b>Proposed Organization.</b>
Vacancy occurring: One of the masters of the district. The one remaining master of the district.	Vacancy filled by appointing: A supervising submaster. A master.
One of two submasters with two masters still in service in the district.	A junior master teaching.
The second of two submasters with two masters still in service in the district.	A supervising submaster.
One of two submasters — one master in service and one supervising submaster already appointed on account of vacancy in one master's position.	A supervising submaster.

#### SMALL DISTRICTS.

<b>Present Organization.</b>	<b>Proposed Organization.</b>
<b>One Master — Two Submasters.</b> Vacancy occurring: Master. One of two submasters. Second of two submasters.	<b>One Master — One Submaster.</b> Vacancy filled by appointing: Master. Junior master teaching. Junior master for teaching position and supervising submaster.

#### SMALLEST DISTRICTS.

<b>Present Organization.</b>	<b>Proposed Organization.</b>
<b>One Master — One Submaster.</b> Vacancy occurring: Master. Submaster.	<b>One Submaster — One Junior Master Teaching.</b> Vacancy filled by appointing: Supervising submaster. Junior master teaching.

## CHAPTER III.—THE HIGH SCHOOL SITUATION.

## HIGH SCHOOL ATTENDANCE AND COSTS.

The first outstanding fact with regard to the high and Latin schools of Boston is the recent tremendous increase in secondary school attendance. The figures on page 6 of School Document No. 12, 1915, show that the "average membership" (average number belonging) in the high and Latin schools increased from 12,121 in 1910-11 to 15,714 in 1914-15; and later figures show that the "number of pupils in schools" in November, 1915, was 17,848, an increase in five years of 5,727 pupils. The yearly increases were as follows: from 1910-11 to 1911-12, 772; from 1911-12 to 1912-13, 438; from 1912-13 to 1913-14, 1,062; from 1913-14 to 1914-15, 1,321; and from 1914-15 to the end of the calendar year 1915, 2,134 (the last returns of the "Special Report on Day High and Latin School Organization" are dated about December first). This extraordinary growth of the high school population has naturally caused the schools to outgrow entirely their building accommodations wherever new building or school enlargement was not made to keep pace with the increasing enrollment. The conditions at the Dorchester High School, for example, are probably unparalleled in any other city of Boston's class.

Naturally, also, the extraordinary increase in the high school population has necessitated in the high school item of the School Committee's budget a much greater expenditure in 1914-15 than was devoted to this item five years ago. On the other hand, a distinct effort to keep high school expenses within reasonable bounds appears to be discernible in the fact that the per capita cost of the Latin and high schools has not risen very rapidly in the five years under consideration in spite of the introduction of new and relatively expensive developments; for example, the 1912 increase of high school salaries and the special organization in the Mechanic Arts High School, whereby a teacher is allowed for every 24 pupils (as against the quota of 35 for the other high schools). Indeed, a tabulation of per capita costs of the various high schools in 1915 and in 1910 shows that some of them have materially reduced their per capita cost; and other figures submitted to us show that the per capita cost of instruction (including here

"Salary of Head Master," "Salaries of Teachers," and "Salaries of Clerks") has risen only from \$62.35 in 1910 to \$63.61 in 1915.

Probably the largest single factor in keeping the high school costs from going any higher than they have gone has been the rising number of pupils per teacher (based on average number belonging) in the high and Latin schools. School Document No. 12, 1915, shows (page 19) a marked upward movement of this figure since 1912, as follows: 1912-13, 27.8; 1913-14, 29.4; 1914-15, 31.2, the highest it has ever been. Thus perhaps a distinct item of recent school policy has been to offset rising salaries with rising size of classes. Without doubt this movement should not be permitted to go any further, for it must inevitably lower the efficiency of the secondary school instruction. Already it is quite apparent that the head masters, facing the necessity of forming a considerable number of sections below the general average of 31, and, of course, decidedly below the teacher quota figure of 35, have formed a large number of sections running not only above 35 but even in some cases above 45.

To find a line of development for the relief of present high school conditions, without impairing the quality of the instruction, we turn to the beginning of a junior high school growth already existing in the Boston elementary school system.

### THE JUNIOR HIGH SCHOOL.

In the Superintendent's annual report of December, 1914 (School Document No. 11, 1914), is to be found (page 43 f.) a brief argument for the Intermediate School, or Junior High School, and a statement that "intermediate classes" had been introduced into ten districts. We understand that there are now 20 intermediate or junior high centers for differentiated seventh and eighth grade work. We recommend the extension of this movement by the inclusion of the first high school year with the seventh and eighth grades, and by the systematic development of properly located three grade junior high schools.

In the report of the United States Commissioner of Education for the year 1914, page 137, a junior high school is defined as "An organization of grades seven and eight, or seven to nine, whether housed with the senior high school or independently, to provide by

various means for individual differences, especially by an earlier introduction of pre-vocational work or of subjects usually taught in the high schools."

New buildings for junior high schools were recommended by the Superintendent a year ago for congested districts as a means of relieving at one stroke both high school and elementary school overcrowding. In all probability also it will be found advantageous to introduce into at least some of the proposed junior high schools a differentiated line of instruction embracing elementary mechanic arts activities; and into these courses might be incorporated the present pre-vocational center classes. Compare the section of this report devoted to industrial and vocational education.

We recommend the general organization of junior high schools not only to extend the advantages of this type of school to all parts of the city, but also to reduce school costs; for salaries in junior high schools, where instruction will be given departmentally to seventh and eighth grade pupils alongside of first year high school pupils, need not be on the high school schedule. Indeed experience in other cities proves that, if the elementary school salary schedule is not too low, teachers well adapted to junior high school work prefer such assignments even at the regular elementary salary, especially if promotion to the senior high school is open to them. Cleveland, for example, has adopted for junior high school teachers a salary schedule with a maximum of \$1,200, a figure very much below the maximum attainable in the senior high schools. Even under circumstances where college graduates with pedagogic training are entering the elementary school service, those who prefer handling older children and teaching chosen subjects as specialties, gravitate toward departmentalized upper grade assignments, where they work at merely the regular elementary salaries.

If the three grade junior high school were systematically developed in Boston, there might arise three varieties of this school: (1) the junior high school within, and attached to, an elementary school district, and in charge of a submaster acting under an elementary master; (2) the independent or unattached junior high school in charge of a submaster reporting directly to an assistant superintendent; (3) the junior high school as part of, or administratively attached to, a senior high school, and in charge of a submaster acting under a high or Latin school head master.



We believe that entirely competent submasters could be secured for such schools at the salary paid to elementary submasters; for the way should be open for promotion from these positions into the senior high schools. The new junior high submasters' salaries would be many times made up by the saving that would occur each year as more and more teachers were allotted to the junior high schools for the increasing number of pupils.

What the actual saving would be in any year or series of years would have to be computed by a tedious summing up of the salaries paid to all the individual teachers at various points on the salary scale. We may, however, get an interesting result for the year 1914-15 by supposing that all the teachers allotted to first year pupils in the high and Latin schools and to classes VI. and V. in the Latin schools had been: first, either junior masters or assistants (the two most numerous high school ranks) at the maximum salary, \$2,628 and \$1,764, respectively; second, elementary junior masters (the proposed new class) or master's assistants at a common maximum salary of \$1,176. In the first supposition every teacher may be regarded as getting the average between \$2,628 and \$1,764, or \$2,196, and in the second supposition every teacher gets \$1,176; so that each time a teacher of the latter group replaces one of the former group there is a saving of \$1,020. School Document No. 12, 1915, page 15, reports 5,764 pupils in the high and Latin schools' first year group and classes V. and VI. An allotment of a teacher to every 31 of these pupils required 185 teachers; and replacing these teachers with \$1,176 junior high school teachers at a saving of \$1,020 per teacher (as shown above) would have produced a total saving of \$188,700. Of course, the saving actually realized in any given situation would be reduced if the number of pupils per teacher in the new seventh and eighth grade classes were reduced, so that more teachers would be required for these pupils under the new plan than under the old. On the other hand, it cannot be doubted that a large saving could be effected at the same time that more efficient schooling was being accomplished. Moreover, whenever new buildings were put up for the housing of junior high schools, the type of building employed could be much less expensive than that ordinarily adopted for typical city high schools of modern construction.

Until the junior high school plan can be put into full operation, the possibility of securing relief in certain greatly overcrowded districts through the lengthened program in use in the Oakland, California, high school, in certain New York City high schools and elsewhere, might well be studied. By this plan, pupils come and go in relays and though a high school building may not be large enough to accommodate its full enrollment at any given hour, the addition of three or four periods to the usual school day enables the school to give an increased number of pupils their full quota of recitation periods. This plan, where used, is regarded as but a makeshift and it is not recommended by the committee as a solution of Boston's high school housing problem.

Still less can the committee at this time recommend the adoption by Boston of the so-called Gary duplicate plan, either in elementary schools or in high schools. Its applicability has not yet been sufficiently tested except under the peculiar conditions which obtain in the city of moderate size in which it originated. The interesting experimentation with the duplicate plan which is now going on in a dozen schools in New York City should be studied with Boston's needs in mind; but since Boston has no part time problem to grapple with, the necessity which exists in New York for deciding for or against the duplicate plan is not a pressing one here. It is by no means certain that the remodeling of existing buildings, which would be required to put the Gary plan into operation in Boston's numerous schools, would be less expensive than as much new construction as will keep pace with the annual increase in school enrollment. The claims of economy made early in the course of New York's interesting experiment are not now given foremost place by advocates of the Gary system. On the basis of evidence now obtainable the committee regards the duplicate plan as administered in Gary and New York City as a gigantic educational experiment worthy of the most careful study, but as not yet having demonstrated its superiority either in economy or educational work to the six-three-three plan advocated in this report.

#### THE HIGH SCHOOL QUOTA OF TEACHERS.

The determination of a school's quota of teachers is obviously a very important matter. If too few teachers are granted, the children's education suffers; if more

teachers are granted than good management would require there is waste. Furthermore, in any situation such as Boston now presents, with housing conditions in the various high and Latin schools ranging all the way from very good to desperately bad, a given rule for determining the quota of teachers in reference to the pupil membership may work well in a school well housed, but break down in another school where bad housing necessitates uneconomical classifications of pupils.

Figures submitted upon the number of teachers in the several high and Latin schools in December, 1915, showed only four of the fifteen schools with a teaching force exactly at the quota; whereas six schools had more teachers than the quota allowed (five schools one teacher above, one school five teachers above, reduced to two in latest report) and four schools had fewer teachers than the quota (two schools one below, one school two below, one school three below), and the situation in the Mechanic Arts School was left unstudied. An intimate study of this question of the supply of teachers in the secondary schools would be necessary before one could be justified in passing final judgment upon the matter, but the foregoing figures suggest that the rule for determining the quota of teachers to be allowed the high and Latin schools may be in need of revision.

#### HIGH SCHOOL ORGANIZATION.

Data concerning the organization of the high and Latin schools were submitted in the form of various reports from the several head masters. All these reports have been examined. Taken altogether they seem to demonstrate that the masters are not equally skillful and economical in school management, and that their assignments of work to their subordinates are widely and unnecessarily uneven, although the class room accommodations in each building would have to be taken into account in arriving at a fair judgment upon the master's management. Two topics were singled out for particular consideration; the question of heads of departments, and the size of classes (teaching sections) and assignment of work to teachers.

To a considerable extent the present head master is not responsible for the heads of departments he now has; some of them he simply inherited when he became head master. A study of the number and personnel of the present heads of departments shows that the group

consists of "masters, heads of departments" (men) and "first assistants, heads of departments" (women), and that the total of these heads of departments in December, 1915, was 90. One expects the title, rank and salary of a head of department to be given only to a specially selected executive assistant to the principal, and the chief function of the head of department should be to organize and unify the work of the department and supervise the class room instruction of the subordinate teachers, the assumption being that a head of department will not be needed until there are at least three teachers working together in a given field, so that when one of them is made head of department there will remain not fewer than two subordinate teachers. Of the 90 present heads of departments a considerable number seem to be not at all properly so designated, and in answer to the question how many heads of departments are heads of fields of study represented by fewer than 60 periods per week, the head masters report 20 such heads of departments. The issue here raised is met quite frankly by certain head masters. One wrote: "the 'heads of departments' are also 'first assistants' and were appointed as such by reason of their superior worth as experienced and efficient teachers." Another head master wrote: "the appointment of heads of departments was largely on a seniority basis." If not only capacity for executive and supervisory assistance but also superior merit as a teacher and even mere seniority may determine promotion to the rank of head of department, an unnecessary number of persons may be advanced to this highest paid class under the head mastership. That this situation has actually arisen had been recognized, and that steps have been taken toward correcting it, appears in the rule to the effect that, as present incumbents of the headship of department are eliminated, a school shall have no more than four heads of departments except as additional heads may be required for departments having not less than 60 periods of instruction per week. In the meantime the unnecessary heads of departments in some instances prevent a school from securing one or more needed heads of department. One head master, for example, has his full quota of six heads of departments, including two or three unnecessary heads (one, the "department of ancient languages," no longer necessary because "Greek has passed away, tho' Latin lingers moribund"), while he cannot get a needed head of department of English

because his quota of heads is filled. It is the opinion of this committee that the headship of department should involve functions of a distinctly executive and supervisory character; that only persons capable of rendering this sort of assistance to the head master should be made heads of departments, and that such headships should lapse by rule whenever they become unnecessary either from the shrinkage of instruction in a given department or from other circumstances. If such a rule were now in operation the head master last cited would not find himself and his school embarrassed by both a superabundance and a deficit of heads of departments.

Whether or not the head master's organization of classes is in all cases as economical as it might be under the circumstances could be determined only by a detailed study of the "special reports on day high and Latin school organization," the teachers' "daily program," cards and the written statements concerning classification and assignments to teachers. It is quite apparent, however, even without such a time-consuming examination, that there is wide variation in the size of classes both between one school and another and within a given school. Instances occur where in the same school one teacher's largest class is smaller than another teacher's smallest class, and in these cases the instructional "loads" in pupil-hours per week that the two teachers are carrying will be widely apart. There is indeed a surprisingly wide range seen in the item of each teacher's pupil-hours per week as one follows this column through the reports of the fifteen schools. If the New York estimate of 660 to 720 pupil-hours per week is accepted as the proper range for teachers' assignments of instruction in large city high schools, a considerable number of the Boston teachers have received assignments very much outside the range in both directions. One school, for example, shows 11 of the 20 regular teachers carrying assignments below 660 pupil-hours per week. Report needs to be made also of the fact that quite a number of very small classes are formed, in spite of the extravagant use of teachers' time involved in this practice. One of the smaller schools reports classes of only 2, 3, 4, 6, 7, 8 and 9 pupils, and this is just the school with next to the highest per capita cost, \$100.83 (only the Mechanic Arts School being higher), in the Business Agent's report of 1915. Instead of attempting to conduct such small groups as

separate classes it would be far more economical, and educationally better for the pupils in many cases, to transfer them to other schools where average sized classes in the desired subjects are to be found. Certainly in the interest of reasonable economy, if the smaller schools (membership 500 to 800 pupils) are to enjoy the same high salaries, including the scheduled head master's salary running to \$4,068, as are paid in the largest schools (membership over 2,000 pupils), it will be entirely justifiable to limit costs by placing certain restrictions upon the organization of these smaller schools. Not only might such schools be required to eliminate very small classes, but the head masters might be asked to teach one or two periods a day (as, in fact, one of these head masters does) and to act as head of one or more of the departments; and, indeed, such relatively small schools might be required to have but few if any heads of departments except titular heads, and the range of elective studies in these schools might with propriety be greatly restricted as compared with the elections easily and economically handled in the large schools.

#### SALARIES AND SUPPLY OF TEACHERS.

According to the present high school salary schedule Boston appears to be more generous to high school teachers than are other cities of the 550,000 to 750,000 class; for example, St. Louis, Cleveland, Baltimore and Pittsburgh. Schedules just received from these four cities show the following:

##### ST. LOUIS HIGH SCHOOLS.

*Principal.*—\$3,500; annual increase \$100 to maximum, \$4,000.

*Assistant Principal.*—\$2,150; annual increases \$150, \$100 and \$200 to maximum, \$3,000.

*Head Assistant.*—\$2,000; annual increases \$40, 60 and \$80 to maximum, \$2,180.

*First Assistant.*—\$1,640; annual increases \$60 and \$100 to maximum, \$2,000.

*Second Assistant.*—\$1,120; annual increases \$60 and \$100 to maximum, \$1,640.

*Substitute Assistant.*—\$980, first year; \$1,020, second year.

##### CLEVELAND HIGH SCHOOLS.

*Principal.*—(Central High School and East Technical High), \$3,500.

*Principal of other High Schools.*—\$3,000.

*High School Teachers:*

Fifth Class.—\$2,100; annual increase \$100 to maximum, \$2,300.

Fourth Class.—\$1,900; annual increase \$100 to maximum, \$2,000.

Third Class.—\$1,600; annual increase third and fourth years \$100 to maximum, \$1,800.

Second Class.—\$1,300; annual increase third and sixth years \$100 to maximum, \$1,500.

First Class.—\$1,000; annual increase \$100 to maximum, \$1,200.

## PITTSBURGH HIGH SCHOOLS.

*High School Principal:*

Four-year Course.—\$2,500; annual increase \$100 to maximum, \$3,000.

Less than four-year course.—\$2,000; annual increase \$100 to maximum, \$2,500.

*High School Teachers:*

College graduates.—\$1,000; annual increase \$100 to maximum, \$2,300.

Noncollege graduates.—\$1,000; annual increase \$100 to maximum, \$1,800.

## BALTIMORE HIGH SCHOOLS.

*Principal.*—\$3,000.

*Vice-Principal.*—\$2,200.

*Teachers:*

Boys' High Schools.—\$1,000; to assistant teacher maximum of \$1,800. Head of department, maximum of \$2,000.

Girls' High Schools.—\$700; to maximum of \$1,200.

In comparison with the foregoing schedules Boston has the following:

## BOSTON HIGH AND LATIN SCHOOLS.

*Head Master.*—\$3,204; annual increase \$144 to maximum, \$4,068.

*Master, Head of Department.*—\$2,340; annual increase \$144 to maximum, \$3,204.

*Junior Master.*—\$1,476; annual increase \$144 to maximum, \$2,628.

*First Assistant, Head of Department.*—\$1,332; annual increase \$72 to maximum, \$1,980.

*Assistant.*—\$972; annual increase \$72 to maximum, \$1,764.

*Junior Assistant.*—\$804, first year; \$900, second year.

Industrial instructors, etc., not considered.

Baltimore is, of course, to be regarded as paying unduly low salaries; but it is altogether fair to compare Boston with St. Louis, Cleveland, and Pittsburgh. Furthermore, in the section of this report dealing comprehen-

sively with expenditures for school purposes, Boston is shown to rank high among the large cities in salaries paid both to secondary teachers and to secondary principals. On the other hand, to make proper comparisons between Boston salaries and the salaries paid in other cities, one would need to note exactly which salary ranks in each city are open to both men and women and what are the requirements for admission to each rank, and also to compare adequately the living conditions in the selected cities. Until this is done no detailed recommendation as to the salary schedule should be offered, although the data submitted in the present report suggest that it may not be improper to revise downward the higher salaries of the high and Latin schools' schedule with the exception of the headmaster-ships of the few schools having the largest pupil membership. In one item, however, an immediate recommendation seems to be in order; to advance men junior assistants from \$900 to the present junior master minimum of \$1,476 seems an absolutely unnecessary leap. We recommend that the first increase for men after \$900 be \$144, so that either a new class beginning at \$1,044 will be inserted below junior master, or junior masters will hereafter begin at \$1,044.

To the problem of securing for the high schools a proper supply of competent teachers enough attention was devoted to note three points. First, the way ought to be made easy for excellent experienced teachers from the outside to get into the city high school service, and to this end a rule should be drafted to allow credit for experience elsewhere, so that a teacher of experience, appointed to a given rank, would not have to drop back in salary to begin at the minimum of that rank. Second, good nonresident students ought to be encouraged to enter the Normal School, and to this end the tuition should be only about a hundred dollars, instead of being placed at the present Normal School per capita cost of over two hundred dollars. It is noticeable that, as the Normal School tuition was raised, the number of nonresident students decreased, until at present there are none in attendance. Third, the good of the children and the proper safeguarding of city funds require that tenure of position shall not be so over-secure as to permit teachers to feel they are, when once appointed, in position for life, regardless of the quality of the service they are rendering. Wherever the removal of incompetent or indifferent teachers is made troublesome and difficult, or



even, as sometimes happens, almost if not quite impossible, the schools are burdened with just as many such undesirables as can manage to squeeze through the appointment tests.

#### THE SECONDARY CURRICULUM.

Two aspects of the high school programs of studies were considered: The working of the system of elective studies, and the new commercial courses.

As to the Boston high school elective system it seems likely that this may now be advantageously modified in the direction of having pupil elect one of several more or less definitely formulated curricula, instead of taking in each year a few prescribed "constants" and then choosing freely from a long list of "electives." It is probable that such a modification would helpfully guide pupils' elections and check the making of erratic individual programs; that it would considerably simplify for most of the head masters the problem of schedule making and permit a more even classification, and that it would equalize the work of teachers and reduce expense by reducing somewhat the number of teachers required; for, as the elections become less variable, the pupils can be classified more and more into relatively or even absolutely homogeneous recitation sections with a decrease of the number of under-average sections that have to be formed.

Such consideration as was possible under the limitations of our study was given to the new courses in the field of training for commerce. Undoubtedly a very interesting and praiseworthy attempt is being made to meet the actual business conditions that commercial graduates will face, and definite curriculum adjustments in this direction are seen in the threefold differentiation of the commercial instruction into a "secretarial course," an "accounting course," and a "merchandising course." Of these newer developments the "merchandising course," with its school instruction and store practice in "salesmanship," is to be regarded as at present in a merely experimental stage, so that improvements will be effected as rapidly as experience teaches what had best be done. In the opinion of the committee it would be unfortunate if this piece of educational pioneering were not given the full support it deserves.

Most careful attention, however, should be given to the "practice work" in the store assignments to which

selected boys and girls are sent, and to what the teachers in schools are doing at the same time with the pupils left behind as long as any are left. If the director of practice, or head of department, in salesmanship is not properly alert, the stores may place high school pupils in positions where the work is purely mechanical or automatic and altogether uneducative. If the head master is not properly alert, certain teachers will be more or less idle when many pupils are in the stores, or else these teachers will be merely marking time in school with the pupils not selected for store assignments, so as to keep such pupils from getting ahead of their "practicing" classmates in the academic lessons. It seems likely that the coördination of school and store can advantageously work toward the plan of having equal groups of pupils alternate between class room study and store work, replacing each other at the end of weekly or fortnightly periods; so that, in so far as commercial practice takes place within school hours, both the store positions and the school class rooms will be filled, and no teachers will be idle, nor need class instruction be deliberately retarded. This situation, of course, would raise new problems of its own; for example, whether the total of school instruction received under this alternating plan would be sufficient to fulfill the promotion and graduation requirements, and how to meet the store's call for extra help at rush seasons and on bargain days. In the meantime it is questionable whether selection for store assignments should turn largely or wholly upon "rank in studies"; for it may be argued that all pupils, sometimes the unacademic, just because they are unacademic, should have the privilege of practice if assignments can be obtained for them. It may be further questioned whether as much emphasis should be placed upon the store earnings of pupils in salesmanship courses as seems to be given to this item by some of the persons developing the work. Dwelling over much upon this feature might cause to flock to these courses pupils whose motive is present dollars rather than future efficiency in commerce, and this department of the schools might be in danger of degenerating into an employment agency for minors in temporary holiday, vacation and bargain counter jobs. It is to be fully understood, however, that these comments are submitted merely as points of caution to be observed in the conduct of a meritorious educational enterprise.

## CHAPTER IV.—SPECIAL DEPARTMENTS.

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A study of the special activities in the public schools of Boston shows the individual departments well organized and administered, but they are not properly correlated. At the present time there are fifteen departments, each in charge of a special supervisor. There are two objections to such a scheme of organization:

1. Correlation between similar departments is rendered difficult. It is an educational waste unless designs made in the free-hand drawing classes are applied in the manual training classes or sewing classes. Pre-vocational training should establish coöperative relations with trade school instruction. Physical training has not accomplished its purpose unless it takes into account the physical defects revealed by medical inspection.

2. It is not profitable to occupy the time of a high-priced executive in conference with a large number of department heads when the same purpose can be accomplished by meeting a smaller number. It is probably wise, however, when an activity is first established, to place it under the direct supervision of the Superintendent until it is worked out in accordance with his central plan. It then may be turned over to one of the other departments.

The following is suggested as a tentative grouping:

- I. Practice and Training
- II. Promotion and Educational Measurement.
- III. Physical Welfare.

This department would include school physicians and nurses, athletics, playgrounds, special sub-normal classes, open-air classes, cripples' classes, and classes for speech, ear and eye defectives.

- IV. Industrial Arts and Household Arts.

This group would consist of manual training, drawing, cooking and sewing. In a portion of the field the head of the department would serve only in an executive capacity, as no one person is likely to be familiar with the four lines of work in detail.

- V. Evening and Summer Schools.
- VI. Community Centers.
- VII. Trade training, Pre-vocational, Part Time and Continuation Schools, and evening trade extension.  
This department would include industrial classes, salesmanship and work in vocational guidance.
- VIII. Primary and Kindergarten Supervisors.  
Such a department as this would be a unifying force and serve to put into effect the policies of the Superintendent with respect to the primary schools. It would bridge the gap between the kindergarten and the first grade. Without such supervision school districts tend to separate and some central supervision is necessary to prevent this tendency.
- IX. Music.  
As at present organized.
- X. Attendance Department and Census.  
This would include truant work, supervision of working papers and the permanent continuing work of census.

Meeting the department heads in informal conferences, the Superintendent could shape up departments in an efficient manner and avoid waste and duplication of effort. From time to time he would undoubtedly delegate certain responsibilities in these fields to assistant superintendents.

This is not a question of finance. While minor savings might be effected it is doubtful if the proposed regrouping would result in any considerable change in the total expenditure. It is purely a question of effective organization, enabling the Superintendent to direct the work of the respective departments in an efficient manner. On another page certain economies are suggested.

In discussing the respective departments tables of comparative costs are given in some instances. While these statistics are valuable in showing the policy of the cities given, they should not be regarded as exact guides, since variation in methods of school accounting make such figures misleading when applied to small departments. Conditions which justify a seemingly large expenditure for a certain activity in one city may not exist in another city, and even a proportionate expenditure would be wholly unjustifiable.

#### DEPARTMENT OF PRACTICE AND TRAINING.

This department consists of a director and five assistants, upon whom rest varied responsibilities. Upon the director devolves the following duties:

1. Preparation of the pay roll for all temporary teaching service in the city.
2. Assignment and supervision of senior assistants in the high school.
3. Assignment of all long-term substitutes and temporary teachers. Two hundred thirty-seven were assigned during the week preceding the opening of school.
4. Assignment of all practice work in the system.
5. Supervision of substitutes, temporary teachers, and practice work in coöperation with the assistant directors.
6. Six periods weekly of class room instruction in educational theory at the Normal School.

Working in coöperation with the director, the five assistants supervise the substitutes and temporary teachers and follow closely the work of the practice teachers. The conclusions reached by the director and assistants from these visits determine the rating given prospective teachers prior to appointment on probation. This work is of exceeding importance as the schools are dependent upon the accurate judgment of the director in avoiding the appointment of incompetent teachers to positions in the Boston schools.

Ability to teach and teach efficiently constitutes the only claim which a teacher has a right to urge in support of her application for appointment. No method of ascertaining this fact has ever been devised so sure of success as the direct observation of the teachers' work in her own class room.

This department is handling a large and vitally important problem. Its independence should be safeguarded and it should receive liberal financial support.

#### DEPARTMENT OF EDUCATIONAL INVESTIGATION AND MEASUREMENT.

The work of the Department of Educational Investigation and Measurement is, in the opinion of the committee, well organized and of very great value

to the school system. The work already accomplished in measuring the achievements of children, and in developing a standard of work available for both children and for teachers, will, in our opinion, do much to increase the efficiency of the school system. The method following in determining merit upon the part of those eligible for promotion in the school system, makes possible intelligent action by the Superintendent of Schools in the nominations which he makes to the School Committee. The revision of the elementary school courses of study has already provided an opportunity for most significant coöperation upon the part of teachers and supervisors in this important undertaking. The head of this department is in all of his work directly responsible to the Superintendent, and in the degree to which he is efficient he increases the efficiency of the Superintendent of Schools as the chief executive officer, and at the same time the efficiency of the whole school system. This department has, in the judgment of the committee, already given ample evidence of its worth to the school system, and of the added returns which may be expected should larger support be provided.

#### PHYSICAL WELFARE (SCHOOL HYGIENE).

Boston was the first city in the country to recognize the supreme importance of preventing the tremendous waste due to physical defects, and in 1894 established a system of medical inspection under the control of the Board of Health. Originally it was instituted to detect contagious diseases in order to prevent their spread among school children. Today it includes not only the discovery of contagious diseases but it attempts to determine incipient physical defects which interfere with the ability of the child to profit from school instruction. Broadly speaking, it works in two fields, the preventive and the remedial, and of these the first is the more important.

#### *Relative Number of Inspectors and Pupils.*

One of the vital questions is whether 41 physicians and 38 nurses, the number now employed, are sufficient to care adequately for the health of the children in the

Boston public schools, enrolling, in 1914-15, 120,846 pupils. Terman, of Leland Stanford University, gives the following number as the proper quota:

- 1 Medical director, full time.
- 1 Assistant medical inspector, one-half time, for 6,000 elementary children.
- 1 Woman physician, full time, for 800 to 1,200 high school girls.
- 1 Man physician, full time, for 800 to 1,200 high school boys.
- 1 Nurse, full time, for 2,000 elementary children.
- 1 Dentist, half time, for 10,000 pupils.
- 1 Eye, ear, nose and throat specialist, half time, for 10,000 pupils.

According to this statement Boston would require on a conservative basis:

- 1 Director, full time.
- 10 Assistant directors, full time.
- 8 Women physicians, full time, for high school girls.
- 7 Men physicians, full time, for high school boys.
- 50 Nurses.
- 6 Dentists, full time.
- 6 Eye, ear and throat specialists, full time.

The necessity for the employment of dentists in Boston is obviated by the adequate provision for this work by the Forsyth Dental Infirmary and similar institutions.

It would appear that Boston is providing to a reasonable degree for carrying on this important work. The experience of other cities, however, indicates the wisdom of employing fewer doctors and increasing the number of nurses.

#### *Relative Costs.*

Boston is securing this professional service at relatively small cost. Terman estimates the necessary total cost of adequate medical supervision at from 75 cents to \$1 for each school child. Using the smaller amount this would represent a total cost to the city of over \$90,000. Basing his conclusions on the returns from 25 cities in New England, New York and New Jersey, Rapeer finds that .011 per cent of the total school

budget is devoted to medical inspection. On this basis Boston would spend for the department approximately \$60,000.

For the year ending January 31, 1915, the actual expenditure for nurses in Boston was \$31,210. If the physicians now employed at salaries totaling \$30,500 were included the department would be maintained at an expense of \$61,710.

The amount suggested by Terman is a more satisfactory standard for Boston since many of the cities included in the Rapeer list are conducting the work in an inadequate manner.

Clearly there should be no reduction in the scope of the work in Boston. The tendency must be toward an extension rather than a curtailment of the cost of the department if the city is to hold a foremost position in this respect among other cities in the country.

In common with other cities, Boston has made provision for various types of children who by reason of physical disability need to be taught in separate classes.

#### *Classes for the Deaf.*

Probably .5 per cent of school children are afflicted with defective hearing to such an extent that they hear little or nothing of what is said in the class room. Returns vary greatly from different cities.

Brockton, Mass., reports 1.8 per cent; Meriden, Conn., .4 per cent; Hoboken, N. J., .7 per cent; Newark, N. J., .6 per cent. Dr. Thomas Wood estimates that over .5 per cent of all children have defective hearing to a greater or less degree.

Whatever the number, due regard for their welfare necessitates some provision other than that made in classes for normal children. This is done in the Horace Mann School, where 15 classes with an average attendance of 124 receive a training designed to prepare them to earn a living wage. The school is partly supported by the state and constitutes no serious burden upon the city. It seems likely that more children should be placed in this school than are now enrolled. Terman estimates that one child in 300 is too deaf to benefit from ordinary class teaching. For Boston this means that 350 children need to be placed in special schools of



the type of the Horace Mann. The number would be increased to about 500 on the basis of the reports of the cities given above.

For the sake of comparison the cost of teachers' salaries, including principal in schools for the deaf, is given for three representative cities.

CITY.	Number of Classes.	Total Average Attendance.	Teachers' Salaries, Including Principal.	Per Capita Teachers' Salaries.
Boston.....	15	124	\$23,179	\$186 92
Newark.....	7	57	8,092	141 96
St. Louis.....	5	51	6,936	136 00

#### *Classes for Children with Speech Defects.*

The classes for stammerers organized in Boston in 1912 are designed to aid children to overcome this serious physical handicap. Experts estimate the number of children needing special treatment for speech defects at from 1 per cent to 1.8 per cent of the total enrollment. In Boston a conservative policy has been followed, as only four teachers have been provided with a total enrollment of about 350 pupils. The demand is indicated by the fact that some 250 are on the waiting list. Pupils report to the teachers in small sections twice a week and are given special drills for an hour and a half. The Superintendent reports that 75 per cent of the 93 children under treatment the first year are permanently cured.

#### *Open-Air Classes.*

In common with other cities Boston has recognized the wisdom of establishing open-air classes for children of tubercular tendencies. Expert medical judgment amply corroborated by actual experience has established conclusively the fact that such treatment will save under-nourished and anæmic children from tubercular infection.

The proper equipment of class rooms and the treatment for pupils in those classes is as completely standardized as for normal classes. The weight of authority, both of medical and educational experts, sanctions the following procedure:

1. Classes should be housed in small buildings in parks, school yards, or on the roof of the regular school.

2. The rooms should be open on three sides with movable windows or canvas curtains that can be closed to protect the children from severe wind or inclement weather. Additional sunlight is sometimes provided by skylights in the roof.

3. Pupils should be assigned to these classes only after a careful examination by the medical inspector.

4. Movable furniture should be provided and also additional clothing and warm food three times daily.

5. The program should allow for frequent rest periods and for an hour's sleep in the middle of the day. This necessitates a well ventilated room provided with cots and heavy blankets.

6. Sufficient time should be devoted to follow-up work by the nurse to insure the effective coöperation of the home.

7. Classes should be small, enrolling approximately 25 children, and should be restricted to two or three grades.

Recent investigations indicate that the results of creating open-air classes by opening windows on two sides of the ordinary class room are decidedly less satisfactory than those obtained from rooms entirely open on three sides.

Inevitably the cost of such classes is more than that of the ordinary class, but it is fully justified if the health and lives of children are taken into consideration. Whatever the immediate cost there is an ultimate saving to the community, as many of these children would finally become a far greater charge upon the public treasury.

In comparison with other cities the per capita cost for teachers' salaries in Boston is certainly reasonable.

CITY.	Number of Teachers.	Average Attendance.	Total Teachers' Salaries.	Per Capita Salaries.
Boston.....	16	434	\$12,585	\$28 99
Newark.....	3	130	5,255	40 43
St. Louis.....	7	157	4,400	28 03
Rochester.....	4	86	3,661	42 57

*Semi-Blind Children.*

A number of pupils so afflicted are to be found in every large school system. The totally blind are probably best cared for in institutions, but the responsibility for those with partial sight rests squarely upon the public schools. Methods of instruction must vary according to circumstances, but it must always be largely a matter of individual teaching. Eighteen children are now being taught in the Boston schools by two teachers. Newark, New Jersey, with approximately half the enrollment, provides two teachers for eleven children, blind and semi-blind.

*Physical Training and Recreation.*

The general direction of these activities is in charge of three supervisors with 22 assistants. One of these assistants is assigned to the Normal School where instruction is given in the theory and practice of physical training to nearly 200 students. Instruction of this character is an essential part of the training of teachers who ultimately are to take their places in the regular class rooms of the city. The remaining 21 instructors carry on the actual teaching in the secondary schools of the city and also supervise the physical training in the elementary schools. Each instructor devotes approximately four days per week to the actual teaching of high school classes and one day to the supervision of the elementary schools.

In the high schools physical training is compulsory and two diploma points each year are given towards graduation.

In the elementary school the department touches 2,095 teachers, directly affecting 93,772 children. The course of study is in harmony with the best practice of the most progressive school systems.

*Athletics.*

The junior masters in the high schools serve as athletic instructors in addition to their regular work and the submasters serve the elementary schools in the same capacity. A small additional compensation is granted for this service, the junior masters receiving \$3 and the submasters \$1.50 from the close of school until about 5.30 p. m. These teachers are selected because of their

knowledge and experience in the different sports, all having played on high school or college teams. The scheme is a most admirable solution of the perplexing question of athletic coaching. The boys know and respect the instructor, while he, more thoroughly than any outsider, understands the capacity and limitations of the individual students. Most important of all, these instructors are permanently in the employ of the schools and the character of their work can be shaped in harmony with the general policy of the Superintendent. The comparatively small cost of this service makes it possible to employ an adequate number to supervise closely the work in athletics. Sixty teachers are engaged in this work for the elementary schools and eleven for the high schools. There is a sufficient number of athletic fields (40) to accommodate every school district, and every boy who is physically able is encouraged to participate in football, baseball, track or soccer.

#### *Playgrounds.*

Seventy-nine playgrounds located in school yards and parks are open to the children of the city. A wise policy has limited the apparatus to swings, tilts, slides, sand tables and other simple equipment. A unique feature of the playground system is the setting aside of small areas for "children's corners." These are usually fenced in and are reserved for the use of women and girls and boys under twelve. The average daily attendance at the park playgrounds was 8,747, and at the school playgrounds 3,942.

#### *Costs.*

The total expenditure in 1914-15 for physical training, athletics, military drill and playground activities was \$81,031, or approximately 1.5 per cent of the cost of maintenance. Considering playgrounds alone the cost per pupil per session was \$0.01 for park playgrounds and \$0.017 for school playgrounds. In view of the supreme importance of the conservation of child health it is doubtful if any other expenditure made by the School Department paid equal dividends upon the investment.

#### *Special Classes.*

One of the serious problems confronting every school department is the question of the proper care of mentally

defective children. It is generally recognized that their presence in regular class rooms constitutes a serious handicap both upon the teacher and the normal child.

All authorities are agreed that the number of children of this type is from 1.5 per cent to 2 per cent of the total enrollment. On the 1.5 per cent basis, Boston, with an enrollment of 102,270 in the elementary schools and kindergartens, may be expected to have over 1,500 children in need of special instruction. In 1914-15, 48 such classes were in operation with a membership of 707. As many more were on the waiting list, but owing to lack of room were retained in the regular classes.

#### Plan of Organization.

The department is in charge of a special supervisor whose entire attention is given to the problem of organizing classes and adapting the courses of study and methods of instruction to the needs of the different groups. The policy of the department is to segregate children in those classes at as early an age as their low mentality can be determined.

Single classes are formed in the different schools for small children and at the age of 12 or 13 many of them are transferred to a central school. Boston now has a school of this character for girls, with 75 enrolled in six rooms and a similar school for boys with an enrollment of 685. These two schools are not sufficient to care for all mentally defective adolescents. All such adolescents should be grouped in special schools or classes under pre-vocational administration.

#### Who Are Included.

The selection of pupils for special classes is practically limited to morons and high-grade imbeciles. Idiots and low-grade imbeciles are not admitted as these are supposed to be cared for in state institutions. Children from seven to twelve years of age physically with a mentality three to five years below age are selected. Every care is taken to prevent the classes from becoming a dumping-ground for truants and incorrigibles.

#### How Selected.

The teacher reports all suspected cases to the supervisor, who often puts them under observation for a considerable time. Every case is finally tested by the

psychological expert employed for this purpose. The tests are a combination of the Binet, Healy and certain other tests prepared by the department expert. When finally approved for one of the special groups the child must enter the class and remain there.

### Teachers.

Like all new problems the problem of the subnormal child finds those who are called upon to solve it with an inadequate training for the purpose. This difficulty is experienced in Boston as in every other city, and is met in practically the same manner. Those teachers who seem best fitted for this special work are asked to qualify. The supervisor follows the plan of placing a prospective teacher in charge of a group of 15 and associating her with an experienced special class teacher. This enables her to learn from experience and observation the best methods of meeting the problems peculiar to the position, and if she proves suited to the work she is ultimately given a regular appointment.

### Conclusions.

1. The number of special classes is inadequate to provide accommodations for the larger number of children who are in need of this particular type of training.

2. Classes for these children as well as all classes for pupils with special defects should be under the general supervision of the department having in charge the physical welfare of the schools.

3. Adolescent children of defective mentality should be segregated and placed under pre-vocational administration.

4. The rules of the Board should be amended to allow pupils to sell shop products from special classes, and after deducting the cost of materials the balance should be paid to the pupils.

5. The School Department in Boston is fully alive to the importance of the conservation of the health of school children. The necessary departments have been created and type classes established to realize this desirable purpose.

6. Medical inspection together with all other agencies for the promotion of health should be associated in a single department.

7. The chief emphasis should be placed upon the work of the school nurse rather than that of the school physician. An increase in the number of nurses employed is desirable, even if it is secured by a reduction in the number of doctors; one physician to two nurses is a satisfactory ratio.

8. It is doubtful if adequate provisions are made for the deaf, semi-blind and children in need of open-air treatment.

9. The general plan for physical training and recreation is sound. Compulsory athletics for all high school pupils is especially worthy of commendation.

10. Development of playground activities should be limited only by the most urgent financial considerations. The city can afford to pay and pay liberally to provide the most ample playground facilities for all children.

#### INDUSTRIAL ARTS AND HOUSEHOLD ARTS.

In Boston the manual activities of both high and elementary schools are under the control of a director in charge of drawing and an associate director responsible for manual training. Two department instructors are assigned to the direct supervision of the work in the class rooms. A single supervisor directs the work in cooking and sewing. This constitutes a separate department with only incidental coördination with the others. The same situation prevails with respect to drawing. The director is held responsible for its efficiency and little or no attempt is made to correlate the work with the manual training.

The requirements of the course of study are as follows:

**Drawing.** Compulsory in Grades I.—VIII.

Elective in High School except in the first year of Commercial High.

**Manual Training.**

Boys and girls. Grades I.—III. Paper-cutting, folding, etc.

Boys. Grade IV. Cardboard.

Grade V. Bookbinding.

Grades VI., VII., VIII. Woodworking.

Girls. Grades IV., V., VI. Sewing.

Grades VII., VIII. Cooking.

#### *Number of Teachers.*

Drawing Supervisors . . . . .	8
Manual Training Instructors . . . . .	* 63
Sewing Instructors . . . . .	56
Cookery Instructors . . . . .	42

\* Exclusive of pre-vocational centers and high schools.

*Drawing.*

The eight drawing teachers supervise the drawing for the entire city and in addition give instruction in drawing to twenty-three classes in the Normal School. This requires an equivalent of four days a week for a single supervisor. With the increasing emphasis placed upon the adequate training of prospective teachers the Normal work is requiring more and more time, and it would seem desirable to appoint a regular teacher of drawing at the Normal School who could give her entire attention to this work.

The eight teachers of drawing have the responsibility of nearly 95,000 pupils with 2,095 teachers. This means the supervision of approximately 250 teachers in from seven to ten schools for each instructor. The chief function of instructors is the interpretation of the printed course of study to the class room teacher with help upon especial problems as the need arises.

The plan as outlined above is sound in theory and merits no adverse criticism. It is evident that the magnitude of the work under the present organization requires a supervisory force equal to that which is now maintained. Under the proposed junior high school plan some reduction would be possible.

*Cooking.*

Cooking is required of the seventh and eighth grade girls but over-age girls of lower grades are allowed to enter the classes. Eight thousand three hundred thirty-five girls are instructed in the school kitchens for two hours per week. This time allowance is a third greater than in the judgment of this committee is necessary when the length of the course is taken into consideration. Under present arrangements each cooking teacher meets two groups for a two-hour period each, making her teaching day four hours in length. If the length of the cooking lesson were reduced to an hour and a half and the teacher met three groups daily instead of two groups a substantial saving would be effected. This is apparent from the following tables:

	Number of Pupils.	Average Number of Pupils in Class.	Number of Classes per Day.	Number of Hours per Day.	Teachers Required.
Present plan.....	8,335	20	2	4	42
Suggested plan.....	8,335	20	3	4½	27



This would release fifteen teachers whose services might be utilized in the needed extension of pre-vocational work.

This reduction in time devoted to cookery need not cause a corresponding reduction in the amount of work accomplished by the pupil if good planning, promptness and vigor characterize the work. It represents, however, a substantial saving in the expense of the department and gives the pupil more time for other subjects.

### *Sewing.*

Three years are devoted to sewing, beginning in the fourth grade. Very wisely the older girls of lower grades are enrolled, making the total number receiving instruction in 1915, 18,057. The number of teachers employed is 56, with the average number of pupils in a class 24. If the same distribution of time were made as was suggested for cooking, 40 teachers could do this work. A still more radical saving could be effected by following the practice of many communities and organizing the work on a supervisory basis and requiring the teacher to give the actual instruction under the direction of the supervisor. The extent to which this additional reduction in the number of teachers of sewing is possible cannot be determined without definite knowledge of local conditions. If attempted it should be done gradually, leaving the teachers to carry on the work as soon as they are qualified to do so. This plan would effect no saving in mixed schools except in grades where boys have shop work. In fourth grades the handwork might be the same for boys and girls if other material in addition to cardboard were provided, in which case a special teacher would not, as now, be required for the girls' work.

Unfortunately school reports give little information on the number of sewing teachers considered essential, as they are usually included under the title "Sewing and Cooking." St. Louis, with an average attendance of 78,463 in all schools, employs 16 sewing and cooking teachers; Newark, with an average attendance of 53,717, employs 6 sewing and cooking teachers. The Rochester, N. Y., report is more definite. The average attendance is 27,124 with but three sewing supervisors. These figures lead to the inevitable conclusion that the policy of the schools indicated is to place sewing on the supervisory basis.

*Manual Training.*

Eleven supervisors are detailed for the work in card-board and elementary bookbinding, representing nearly 11,000 boys and 425 teachers in 115 school buildings. The duties are necessarily confined to inspection and supervision. Instruction in shop work for boys, who number 13,451, is given by 45 assistant instructors in manual training. Older boys from lower grades are permitted to take shop work, a policy in which no change should be considered. The time schedule for boys is the same as for girls, consisting of two hours per week, each instructor meeting two groups of boys daily. A reduction in the length of the period from two hours to an hour and a half, and the substitution of a three-period day for one of two periods, would result in making fifteen teachers available for other assignments. The general tendency to restrict household and manual arts to one period a week of 70 to 90 minutes in the grades is shown by the returns from 156 cities in response to a *questionnaire* upon the subject.

It is unfortunate, to say the least, that hand work for boys in the seventh and eighth grades is restricted to woodworking only. It is impossible to keep the interest of many boys for three years in this single line of work and the result is a distaste for the woodworking trade. In the third year, or eighth grade, a choice among the typical trades of Boston would add to the efficiency of the department.

The total amount expended for teachers' salaries per 1,000 pupils enrolled in three cities in which the salary account is given separately for manual and household arts corroborates roughly the conclusions given above.

Cost per 1,000 Children Enrolled in all Schools.

CITY.	Manual Training.	Cooking and Sewing.
Boston.....	\$810 00	\$940 00
St. Louis.....	314 00	247 00
Rochester.....	1,031 00	676 00

*Conclusions.*

1. Under the present organization little effort is made to correlate related lines of work

2. This correlation may be obtained by establishing a single department of household and manual arts with a single head who serves in an executive and supervisory capacity.

3. A regular instructor should be assigned to the drawing department of the Normal School.

4. One general supervisor with eight assistants is not an excessive number to direct the drawing in elementary schools enrolling nearly 95,000 pupils. After the seventh and eighth grades have been made a part of the junior high school departmental organization a smaller number may suffice.

5. Instead of a four-hour day for teachers of cookery and manual training with two groups of pupils two hours each, substitute a four and a half or five hour day with three groups of pupils one and a half hours each, or two periods one and a half hours each in the morning and one two-hour period in the afternoon. This will reduce the number of teachers approximately one third and release thirty-one teachers for other assignments.

6. The possibility of teaching sewing by regular class room teachers under the direction of supervisors in place of the present scheme might well be considered.

7. The cost of hand work could be reduced in the fourth grade by the introduction of additional material and making the course of study in manual arts identical for boys and girls.

#### EVENING AND VOLUNTARY CONTINUATION SCHOOLS.

The evening elementary school serves three distinct purposes:

1. Teaching pupils whose attendance is required by law.

2. Training in common branches for English-speaking adolescents and adults.

3. Teaching English to foreigners with an attempt to present to them American ideas through teaching of English and particularly through instruction in civics, using that term in its widest signification. The problem of assimilating the constant stream of foreigners must largely be solved by the elementary evening school.

#### *Attendance and Costs.*

Five thousand nine hundred eighty-nine pupils were enrolled in the evening high schools and 12,182 in the

elementary schools. In the table given below, total cost per pupil per hour is used to avoid error due to a difference in the number of nights the schools are in session.

	Total Expense, Elementary School.	Pupil Cost per Hour, High School.
Boston.....	\$0 084	\$0 12
Newark.....	115	16
St. Louis.....	099	119

A large proportion of the evening elementary school enrollment consists of foreigners eager to acquire a knowledge of English. The number is as follows:

Educated in native language . . . . .	6,465
Illiterate in native language . . . . .	2,096

Of these, 1,030 are thirty-one years of age or over. When men and women of this age are willing at the end of a day's work to spend two evening hours for the sake of acquiring the fundamentals of an education, the least the city can do is to afford them every facility in overcoming the inevitable difficulties.

#### *Voluntary Continuation Schools.*

These classes are conducted in coöperation with shops and factories to furnish an educational opportunity for those who wish to obtain the fundamentals of an elementary education or a better preparation for their present position. They must be flexible in organization to meet the needs of their ever-changing membership. In addition to English for non-English speaking people, the courses in the voluntary classes consist largely of short unit courses, determined by the needs of the students in attendance. Provision also is made for workers sixteen years of age who have taken courses in the compulsory continuation school. The total cost is 8½ cents per pupil per hour.

#### *Conclusions.*

1. The 8,561 pupils enrolled in classes for foreigners represent only a beginning in the work that should be

done in a city with a population of 670,585, of whom 242,047 are foreign born.

2. The vigorous advertising campaigns of previous years should be continued and every effort made to arouse the indifferent foreigners to a clear realization of the value of night-school attendance.

3. The courses of study prepared by the School Department indicate a clear understanding of the difficulties experienced by the adult foreigner in learning the new language. So far as possible only those teachers who are especially well adapted to the task of evening school instruction should be selected.

4. The policy of establishing voluntary continuation schools in cooperation with employers of labor is most commendable.

5. The boys and girls compelled to leave school for economic reasons before graduation should be given every opportunity to complete their interrupted education. Due regard for their future as well as the best interests of the city demand a liberal policy with respect to pupils of this character. Every effort should be made to adjust the school hours to their available time. A wide choice of subjects offered should be granted.

#### COMMUNITY CENTERS.

The last census shows that out of a total population of 670,585, Boston has a foreign population of 242,047. No city has yet devised a better solution of the problem presented by its adult foreigners than the establishment of school centers under control of the School Department. In Boston this work is being carried on effectively at a small cost entirely out of proportion to the value of the service rendered.

#### *Organization.*

Under a general director and four assistants the city is divided into seven districts, each being in charge of a man selected because of his knowledge of the local situation. Each district supervisor is assisted by a woman whose especial duty is to direct the work among groups of women.

In each district group leaders are chosen for the various activities desired. They include groups interested in sewing, dressmaking, millinery, cooking, dramatic work, basketry, nursing, gymnasium, basketball, and clubs for fathers, mothers and young men.

*Entertainments and Lectures.*

The department stands consistently for entertainments of educational significance and value. Programs consisting of good music, illustrated lectures, dramatics, and masterpieces in moving pictures are the means employed. That these courses were appreciated is indicated by the fact that 44,134 people attended the English lectures in one season. Local talent is developed wherever the interest warrants.

The non-English lectures were given in coöperation with the North American Civic League for Immigrants, and were intended primarily for instruction in civic duty and responsibility. Five languages, Lithuanian, Polish, Italian, Yiddish and Arabic, were employed.

*Membership.*

Emphasis is placed upon building up an adult membership in all centers. Three thousand four hundred and nine persons over sixteen years of age were enrolled. Only those who came regularly were reckoned in this number. The most valuable work is not done by filling a hall to hear some popular speaker, but it is accomplished by enlisting the interest of a small group which meets to work out its own problems.

*Expenses.*

The state law does not permit the Boston School Board to charge an admission fee for the use of halls or buildings. Expenses must be met by voluntary contributions, and tickets may be issued to identify subscribers. This provision of the statute, designed to prevent the School Committee from making any profit out of the rental of school buildings, handicaps the work to a certain extent by complicating the machinery necessary to place the clubs on a self-supporting basis. Fifteen clubs are entirely self-supporting and two are practically so.

The total attendance at the seven centers for the year was as follows:

	Total Attendance.
Clubs and entertainments . . . . .	98,530
English lectures . . . . .	44,134
Non-English lectures . . . . .	16,209
122 home and school associations . . . . .	36,388
21 alumni meetings . . . . .	3,962
26 citizens' meetings . . . . .	4,744
56 other meetings . . . . .	6,560
Total . . . . .	<u>210,527</u>

### *Conclusions.*

1. Plans for the construction of new buildings and the remodelling of old schools should provide rooms adapted to the special activities desirable for the neighborhood. Some cities design double kindergarten rooms well adapted to this double use.

2. Unless required for use of evening classes, buildings should be utilized for social center purposes on any night most likely to secure the attendance of the people in the neighborhood.

3. A liberal policy should be observed in opening school buildings for local use. The enterprise should be safeguarded by the most careful study and supervision so that undesirable tendencies may be promptly checked.

4. The effort of the department to make groups self-supporting is to be commended.

### MUSIC.

The number of pupils in charge of each of the assistants is large, so large that many music supervisors would consider the burden excessive. The totals are given in the following table at the head of each of the columns:

	I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.
Pupils.....	8,350	9,574	8,380	8,467	7,827	9,284	9,301	9,131	8,867
Teachers.....	214	235	214	209	194	232	236	228	219

The work of the assistants in charge of the high schools consists of the direction of the choral singing. Assuming that six periods daily is a reasonable requirement for high school instructors both of these supervisors are carrying full schedules.

Little comment concerning this department is necessary. The wisdom of the policy of giving music instruction in the public schools has been so thoroughly established that even the severest critics of the schools would hesitate to advocate the elimination of the department.

To increase the number of teachers and pupils assigned to each supervisor is inadvisable. The policy of allowing full credit for music taken with approved instructors is worthy of especial commendation, and should be continued.

## KINDERGARTENS.

*Organization of the Department.*

The director and her assistant have under their immediate supervision kindergartens with an average attendance of 5,298 children in 138 classes. These are cared for by 244 teachers. A special assistant is allowed in all classes in which the attendance is in excess of 60 children. In addition to these special assistants another small group of young women is employed, called attendants. They take no active part in the instruction but give their attention to the physical needs of the children. They are assigned to the foreign schools where the inability of the child to understand or express himself in English makes an interpreter necessary.

*Suggested Change in Administration.*

The eligible list of kindergarten teachers is usually short and the supervisor finds considerable difficulty in meeting the demand for special assistants. The department is often compelled to assign teachers with little experience to these positions. This difficulty could be met by transferring special assistants to regular positions and by allowing practice teachers from the various excellent private kindergartens to serve as special assistants in the overcrowded rooms. Not only would this result in some financial saving but it would enable the kindergarten supervisor to select for ultimate appointment a very superior group of trained kindergarten teachers. It frequently happens that a hundred or more of these girls are observing in the various rooms of the city. The department can ill afford to lose the opportunity to utilize the services of these students and to secure that accurate knowledge of their ability which comes only from direct observation of their work under actual teaching conditions.

*Kindergarten Accommodations.*

Judging from the type of room in which Boston kindergartens are housed previous building plans have not given due consideration to the requirements for effective kindergarten work. A single room of the ordinary size does not give sufficient space for two groups of children. The best practice requires two connected rooms, one for



the tables and the other large enough for a ring 20 feet in diameter. A private toilet is an essential feature. A wardrobe adjacent to the main room for outside clothing should be provided. If one room is used it should be larger than a single class room, at least 23 feet by 50 feet, with the same toilet and wardrobe facilities as the double room.

Of the 90 one-room kindergartens 57 are approximately 25 feet by 32 feet and only three are materially larger. In one instance a space 30 feet by 19 feet is allowed. Even in new schools with two rooms separated by folding doors insufficient space is the rule.

Better facilities could be provided at no additional expense if the expert advice of those in charge were more frequently sought. It would be a wise business policy to secure the coöperation of this department in developing a standard type of kindergarten room for all future school buildings. A similar plan could be followed profitably in working out a scheme for improving those rooms now in use. If the same principle should be utilized in selecting the equipment for these classes better results could be secured at no additional cost.

#### *Afternoon Sessions.*

For the sake of economy it is often suggested that kindergarten teachers be required to care for one group of children in the morning and a second group in the afternoon. Advocates of this plan lose sight of two material considerations.

A teacher who has worked with a large group of children for the morning session has lost so much nervous energy that she is physically unable to repeat the necessary effort efficiently with a totally different group of children in the afternoon. A kindergarten teacher even more than others needs to be vivacious and alert.

The children themselves constitute a second objection to this arrangement. After a morning of boisterous play the children are in no suitable condition to profit from instruction and are dull and lifeless, so that the session lacks in the joy and spontaneity characteristic of a good kindergarten.

In the foreign sections of the city language difficulties alone make the need of a double session imperative. Unless the children come to the first grade teacher with

a reasonable knowledge of English effective teaching is impossible. A foreign tongue is used both in the home and by playground associates and the school is the only place where the necessary facility in English can be acquired.

Each kindergarten class should have two sessions; recreation being emphasized in the afternoon session and systematic home visitation required.

The committee is unanimous in regarding it unwise to attempt a double session with an afternoon session devoted to work of the same character as that given in the morning. If the morning is devoted to regular kindergarten work the afternoon can profitably be devoted largely to free play, organized games and school excursions. Such a division of the school day saves the child from undue fatigue and furnishes an excellent opportunity for his training as a social being while at the same time he receives a most effective training in the use of the English language.

It is not to be assumed that the work of the kindergarten ends with the close of the session. Constant home visitation should be the rule.

### *Conclusions and Recommendations.*

1. Establish kindergarten for four-year old children in all congested and foreign districts as funds permit through savings effected by utilizing the services of unpaid practice teachers as assistants.
2. Provide space for two rooms with private toilet in all new buildings and remodel old buildings on same basis as rapidly as circumstances will permit.
3. Utilize the expert opinion of the department in planning and equipping kindergartens.

## CHAPTER V.—VOCATIONAL EDUCATION.

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This section of the report deals with the Compulsory Continuation School, the Boys' Industrial School, the Girls' Trade School, the Part Time Coöperative Course in the Hyde Park High School, the Pre-vocational Departments in various schools and Vocational Guidance.

Children expecting to follow mechanical occupations may enter pre-vocational departments in the upper grammar grades for a tryout experience in an attempt to determine the choice of occupations. Unfortunately, the opportunities for pre-vocational work are at present quite limited.

The Continuation School cares for the children who leave school between the ages of fourteen and sixteen. It gives two hours a week of general education and two hours of tryout experiences to those who have not determined upon a vocation or two hours weekly of vocational improvement to those who have entered their vocation. Practically all of the fourteen to sixteen year old children who have entered employment are cared for in the Continuation School.

The Trade School for Girls, the Industrial School for Boys, the Mechanic Arts High School and the coöperative department in the Hyde Park High School offer specific trade training to children who remain in school. The trade and industrial schools will probably always have a definite place in a scheme for trade training, but they cannot be considered as the sole agency for doing this work. While coöperative or part time courses are established to a very limited extent in Boston, and at present only in a high school, it is possible that they may become the most important agency for trade training.

Vocational guidance is closely associated with the functions of each of the schools dealt with in this section of the report.

## PRE-VOCATIONAL DEPARTMENTS.

Pre-vocational centers for boys have been established in eleven districts. These departments were originally planned for backward or retarded boys.

*Aim.*

The pre-vocational schools aim to appeal to the interests of grammar school children and thus to hold them in school; to accelerate progress in school; to show the importance of the vocations and the possibilities of entering them; to offer a preliminary training for boys who may intend to enter the Industrial School, the Mechanic Arts High School, or the coöperative high school courses; to give a try-out experience to children who must enter employment at the age of fourteen; to make instruction intensive and concrete by relating the academic work to the activities.

*Entrance Requirements.*— Children do not usually enter the pre-vocational school before they are twelve years of age. While retarded or over-age children are usually considered in connection with these courses, the concrete application of the academic work to the activities offers a most satisfactory method of teaching to a large proportion of children. Increased powers are acquired in pre-vocational experience that are not developed in the regular course. For many children the work offers a superior preparation for the high schools. For these reasons, pre-vocational courses should be offered as electives to all grammar school pupils twelve years old or over and to those who have completed the sixth grade. The aims above stated are not carried out at the present time inasmuch as practically all the pupils enrolled in these departments are from the over-age and backward children. A number of adolescent mental defectives are admitted to these departments. These children should be placed in special classes and given a large amount of shop work. The supervisory staff of the pre-vocational departments could well direct the work of these children.

*Organization.*

The pre-vocational schools are under the immediate direction of the Associate Director of Manual Arts. An assistant director of manual arts has charge of the shop

work and certain phases of the related work. These pre-vocational centers are located in the regular elementary school districts and form a part of the elementary schools coming under the jurisdiction of the grammar masters.

Each trade unit is composed of a group of forty-five boys, with one class teacher and one shop teacher. The shop instructor has fifteen boys at a time, the class room teacher having fifteen recite while fifteen are studying. The classes are in session six hours a day for five days a week. Some centers have but one trade represented with one unit of forty-five boys. Others have two and some three. This report deals exclusively with boys, the girls' work not having been developed to a sufficient extent to be recognized as pre-vocational work. It is, rather, extended work in cooking, sewing and household work.

### *Plant.*

The pre-vocational work is handicapped by the limitation of the number of trades represented in any one district. In some cases the boy is getting two years of experience in one trade because there is no other trade course in his district. In other instances, a boy spends a year in a single trade. Pre-vocational courses should include a sufficient number of activities to serve as a try-out experience. By continuing the boys' experience in one trade for a long period, the work ceases to be pre-vocational, yet it is not organized educationally to become actual trade training; furthermore, it loses its vocational guidance value. It is also apt to draw boys into a certain trade for which they have no particular interest. Theoretically, the boy may be transferred from one center to another in order to get a variety of try-out experiences, but in practice the boy stays in one school and in the activity that he started with. The pre-vocational machine shops are equipped to an unnecessary degree of completeness. Centers simply equipped for hand work, with few power tools, are suitable to give pre-vocational training. One large shop could be used for instruction in a variety of activities.

### *Characteristics of the Work.*

Practically all of the shop work is based on orders for different schools. The pre-vocational shops are

equipped to do a large amount of work for the school buildings, grounds and furnishings. The product turned out meets the requirements so far as this work has been attempted. A tremendous fund of educational experience is available if the possibilities are sufficiently utilized. Money expended for equipment produced by the schools gives a double return, first, in providing valuable educative experience, and second, in supplying equipment to be used in educational practice. It seems desirable that the functions of the Schoolhouse Commission, the Business Agent and the directing staff be so associated as to secure the fullest advantage in providing this valuable educational opportunity and in securing the added return for the money expended.

The shop teachers are selected from the trades. With fifteen boys in the shop at a time, these teachers are enabled to give a sufficient amount of instruction to make the experience of the boys profitable. A serious attempt is made to correlate class room work with the shop practice. In only one of the classes visited, however, was any natural correlation observed. Most of the teachers of the class room work are women of experience in the regular elementary schools and they probably find it difficult to acquire a working knowledge of subject matter which could best be used in correlation. Some difficulty is experienced in inducing teachers to enter this department, owing to the six-hour day and the special problems involved. Many of the positions are filled on temporary assignments, owing to the lack of properly qualified teachers.

The problem of the proper teaching of related work is still to be solved. The immediate steps that may be taken are: (1) the adoption of a system of shop and class room blanks on which data are secured in the shop, and which are then carried on to the class room for development; (2) some of the responsibility for initiating the related work may be placed on the shop instructor by allowing the initial presentation of subject matter to be given by him, and by requiring complete data to be properly compiled on blanks and handed to the class teacher in advance of her lesson preparation; (3) special training in methods of teaching related work, as by an extension course, would be of value to both shop and class teachers.

## COSTS AND STATISTICS.

## Enrollment of Boys in Pre-Vocational Schools, December 2, 1915.

Mather . . . . .	Lyceum Hall:		
	Sheet Metal . . . .	43	
	Woodworking . . . .	45	
	Electricity . . . .	44	
Dearborn . . . . .	Winthrop Street:		
	Woodworking . . . .	36	
	Bookbinding . . . .	31	
Dudley . . . . .	Miles Standish:		
	Machine Shop . . . .	40	
	Paint Shop . . . .	29	
	Electricity . . . .	35	
Sherwin . . . . .	Sherwin:		
	Sheet Metal . . . .	36	
Agassiz . . . . .	Agassiz:		
	Woodworking . . . .	31	
	Printing . . . .	24	
Quincy . . . . .	Quincy		
	Machine Shop . . . .	42	
Eliot . . . . .	North Bennet Street:		
	Woodworking (a) . . . }	38	
	Printing (b) . . . }		
Lawrence . . . . .	Parkman:		
	Machine Shop . . . .	30	
	Electricity . . . .	30	
	Woodworking . . . .	30	
Lewis . . . . .	Lewis:		
	Printing . . . .	35	
Theodore Lyman . . . .	Austin:		
	Bookbinding . . . .	36	
	Printing . . . .	32	
	Machine Shop . . . .	45	
Prescott . . . . .	Abram E. Cutter:		
	Woodworking . . . .	33	
	Electricity . . . .	36	
Total number in pre-vocational centers . . . .			<u>781</u>

The statement of costs submitted by the Business Agent for pre-vocational schools is given below:

## FINANCIAL YEAR 1914-15, NOVEMBER 24, 1915.

## PRE-VOCATIONAL CENTERS.

Salaries of principals . . . . .	\$786 51
Salaries of teachers . . . . .	21,904 01
Carried forward . . . . .	<u>\$22,690 52</u>

<i>Brought forward</i> . . . . .	\$22,690 52
Text, supplementary and reference books . . . . .	98 75
Manual training supplies and equipment . . . . .	3,027 37
Drawing supplies and equipment . . . . .	276 55
Miscellaneous supplies and incidentals . . . . .	349 88
Salaries of janitors . . . . .	853 23
Fuel . . . . .	451 30
Light . . . . .	93 89
Power . . . . .	3 88
Janitors' supplies . . . . .	63 74
Rental charges . . . . .	* 2,580 00
Supervision and general charges of Department of Manual Arts . . . . .	1,829 80
Other administration, supervision and general charges . . . . .	2,058 20
Total . . . . .	† <u>\$34,377 11</u>
Average attendance . . . . .	369
Cost per pupil . . . . .	\$93 16

The charge for supplies has been reduced by credits for work done for the School Committee and the School-house Commission. The actual cost of operating pre-vocational schools could be still further reduced by giving these schools a larger number of orders for work on school plants and equipment. The item of rental charge includes the total amount of rent paid for two of the pre-vocational centers, which rent includes heat, light and janitor service. If the cost of this school was put on the same basis as the costs submitted by other schools, the proportion which represents investment, sinking fund and repair charges should be deducted. An adjustment to this figure might be made by taking three tenths of \$2,580 as representing light, heat and janitor service, making a reduction in the total cost of \$1,806, or making the total of \$32,571.11. If the \$821.03 for equipment is deducted, the total is \$31,750.08. The cost per pupil on the basis of average attendance is \$86.05.

### *Conclusions and Recommendations.*

Boston has for several years been conducting pre-vocational classes and the committee sees much of value in the work. There are several changes which should be made to make it still more valuable, and in sug-

\* Two of the pre-vocational centers are located in hired accommodations, rental for which includes services of janitors, heat and light.

† Exclusive of lands and buildings, furniture and furnishings, repairs, depreciation, interest and sinking fund charges.



gesting these changes no criticism is implied as to their past management.

Pre-vocational departments should be maintained for the children of twelve years of age or over in regular schools who can best secure a general education through a participation in industrial or homemaking activities, and they should be open to all who elect them with the consent of the parents and upon recommendation of the proper school authorities. The work should include as great a number of activities as possible for each pupil and should be given to groups no larger than the present plan provides for.

While backward or retarded children should be admitted to this department as in any other, this selective basis of enabling pupils should be replaced by the free elective basis. All children should be admitted to pre-vocational courses who can profit more in these departments than in the regular academic departments. Pre-vocational classes should be organized for girls as well as for boys.

The committee recommends that as rapidly as possible the pre-vocational classes be made a part of the differentiated junior high school as proposed in another part of this report and that the pre-vocational courses should be three years in length, covering the seventh, eighth and ninth years of the school course.

It is also recommended that the equipment for future pre-vocational centers should be simple and provide for as many of the most important activities as will meet pre-vocational requirements for tryout experiences and will furnish educational background.

Training should be provided for the teachers of related work to increase efficiency in this branch. The present shortage of supply of teachers will disappear under the junior high school schedule.

Adolescent mental deficient should not be placed in pre-vocational classes but could be well cared for under the pre-vocational administration in special classes and given a large amount of practical work.

**Total Number of Pupils \* Twelve Years Old and Over at School in Pre-Vocational Courses, by Courses, for the School Year 1914-15.**

**ELEMENTARY SCHOOL GRADES.**

1. Woodworking . . .	179	4. Bookbinding . . .	81
2. Printing . . .	121	5. Electricity . . .	50
3. Machine Shop . . .	108	6. Sheet Metal . . .	81

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\* No boys are admitted under twelve years of age.

**Statistics for Pre-Vocational Schools — September, 1914, to  
June 1, 1915.**

	Total Number Enrolled.	Number With- drawn.	Average Member- ship.	Average Attend- ance.	Number Belonging June 1, 1915.
* Abram E. Cutter:					
Woodwork.....	—	—	—	—	—
Electricity.....	—	—	—	—	—
Agassiz:					
Woodwork.....	39	8	31.1	26.8	31
* Printing.....	—	—	—	—	—
Austin:					
Machine.....	52	21	37.4	34.2	42
Printing.....	64	20	33.6	30.6	30
Bookbinding.....	45	11	34.5	29.9	37
Lewis:					
Printing.....	38	9	41+	39+	41
Lyceum Hall:					
Electricity.....	50	9	41+	39+	41
Sheet Metal.....	48	4	41+	39+	40
Woodwork.....	45	3	43+	41+	41
* Miles Standish:					
Electricity.....	—	—	—	—	—
Painting.....	—	—	—	—	—
Machine.....	—	—	—	—	—
North Bennet Street:					
Printing and woodwork...	58	20	38	36	38
* Parkman:					
Electricity.....	—	—	—	—	—
Machine.....	—	—	—	—	—
Woodwork.....	—	—	—	—	—
Quincy:					
Machine.....	56	23	34.3	32.8	29
Sherwin:					
Sheet Metal.....	35	4	33	32	31
Winthrop Street Center:					
Bookbinding.....	36	14	20	17	22
Woodwork.....	56	24	29	26	29

\* Not established until September, 1915.

### Number of Boys Graduating from Pre-Vocational Courses Entering Employment.

TYPES OF EMPLOYMENT ENTERED.	Trade Tried in School.	Profitable Work Not Tried in School.	Employment Without Future.
From courses in:			
Cabinetmaking and carpentry....	6	13	6
Electrical work.....	3	1	1
Bookbinding.....	3	13	4
Sheet metal work.....	3	—	3
Machine work.....	5	8	—
Printing.....	6	13	9

### Number of Under-Graduates Leaving Pre-Vocational Courses Entering Employment.

TYPES OF EMPLOYMENT ENTERED.	Trade Tried in School.	Profitable Work Not Tried in School.	Employment Without Future.
From courses in:			
Cabinetmaking and carpentry....	.....	16	12
Electrical work.....	.....	1	2
Bookbinding.....	.....	6	6
Sheet metal work.....	1	.....	1
Machine work.....	3	13	5
Printing.....	.....	6	8

### Number of Boys Graduated from Pre-Vocational Schools and Entering High School or Industrial School.

LIST OF PRE-VOCATIONAL SCHOOLS.	Agassiz.	Austin.	Lewis.	Lyceum Hall.	North Bennet Street.	* Quincy.	Sherwin.	Winthrop Street Center.
Boys' High Schools:								
Dorchester.....	.....	.....	.....	10	.....	.....	.....	.....
English.....	.....	.....	4	.....	.....	.....	1	.....
East Boston.....	.....	.....	.....	.....	1	.....	.....	.....
High School of Commerce..	.....	.....	4	5	.....	.....	.....	1
West Roxbury.....	1	.....	.....	.....	.....	.....	.....	.....
Wentworth Institute.....	.....	.....	.....	1	.....	.....	.....	.....
High School not in Boston..	.....	.....	.....	.....	.....	.....	1	1
Mechanic Arts.....	.....	.....	2	4	.....	.....	11	1
Industrial School for Boys..	1	2	.....	7	2	.....	2	1

\* This year the Quincy pre-vocational class has an eighth grade for the first time. Twelve out of a total of thirteen enrolled in the seventh for 1914-1915 are now in the eighth grade.

## THE COMPULSORY CONTINUATION SCHOOLS.

Continuation classes were first established by the Boston School Committee in 1910 for young people employed in the shoe and leather industry, the dry goods industry and department stores. The support accorded these classes by business men of Boston led to further development of the continuation school through legislation enacted by the General Court in 1913. This legislation (chapter 805, Acts of 1913) permits school committees to establish compulsory continuation schools for workers between the ages of fourteen and sixteen years regularly employed at least six hours a day, and, with the approval of the State Board of Education, to make attendance compulsory. This act stipulates that instruction shall be given within the hours which children are permitted by law to work, such instruction to be not less than four hours per week. The act also provides that the state shall, under certain conditions, reimburse cities and towns for one half the cost of the maintenance of such schools. Classes were opened under the present law in September, 1914. The school is in session five days a week during the entire year. The pupils are required to attend four hours each week until they are sixteen years of age. The teachers serve six hours a day, four in class work and two in follow-up work.

*Aim.*

The aim of the Continuation School is to serve this group by continuing general education, by promoting civic intelligence, by equalizing opportunities, by meeting the situation that exists as the result of the child labor laws, by extending vocational intelligence and by providing vocational guidance.

*General Education.*— These schools give a portion of their time to helping boys and girls acquire a working knowledge of such fundamental subjects as arithmetic, reading and writing, in order to give them greater demand of these common tools in their daily work and to enable them to perform the duties of citizenship.

*Promoting Civic Intelligence.*— Boys and girls who go to work at the age of fourteen to sixteen leave school at the very time of their lives when they need to acquire ideas of civic affairs. Under such circumstances they enter the industry without knowing their proper relation

to the municipality. The Continuation School gives training in city affairs by actual contact with city departments.

*Equalizing Opportunities.*—The children who enter employment at this early age are thrust on the world with just the rudiments of an education and are required to make their way as best they can. The Continuation School steps in to discharge the responsibility of the state toward these children by giving them opportunity for further education while at work.

*Meeting the Situation Resulting from the Child Labor Laws.*—These laws, which have been wisely enacted for the welfare of the children, limit the occupations in which they may engage. The Commonwealth's responsibility for placing children in the right job is expressed by the fact that it has attempted to limit the occupations in which children may engage. As they cannot be employed in occupations in which they may acquire skill or specific ability, it is highly important that the state give them training that may be applied when they reach the age of sixteen.

*Extending Vocational Intelligence.*—Through trade and business experiences the continuation schools afford a specific means for the acquirement of certain useful powers in vocations. To develop these powers continuation schools provide work in printing, machine shop practice, cabinet making, carpentry, electric wiring, pattern making, typewriting, dressmaking, millinery, office practice and salesmanship. Where children have definitely chosen one of these vocations the school gives them opportunities to acquire more or less vocational intelligence and skill in the vocation chosen. Boys and girls who have not yet chosen a vocation, and very few have, are introduced to a variety of occupations so that they may make an intelligent choice.

*Providing Vocational Guidance.*—An effort is made to help the children determine what occupation they are best fitted for and to assist them in securing positions in the occupations chosen. Each instructor has three duties in this connection: to give information about the various occupations; to help place pupils in the occupations they have chosen; to check the results of the training and guidance by follow-up visits to the places of employment and the homes of the children.

The scheme for instruction in the Continuation School makes the inspirational side of the work considerably more effective than that of the regular schools.

### *Organization.*

The Boston compulsory continuation schools are authorized by statute, and state aid is given provided the schools meet the standards of efficiency required by the State Board of Education.

The staff of the school totals forty-six with a principal, two division heads, sixteen assistants, thirteen special assistants, four trade instructors, two instructors, two trade assistants, three clerical assistants and one tool keeper. Seven of the staff are on part time. Twenty are employed in the La Grange street building. The Boston School Department has chosen teachers who show promise of success in this work and has given them preliminary training before employing them in the Continuation School.

*Classes.*— There are four types of classes: (a) vocational continuation classes, (b) general improvement classes, (c) pre-vocational classes and (d) out-of-work classes.

*Vocational Continuation or Trade Improvement Classes* are intended for boys and girls who are employed in vocations they intend to follow. Part of the school time is devoted to practice in processes related to these vocations. For example, boys from the telephone companies are learning to make up charges from the check slips; boys and girls from business offices are learning to use typewriters; boys and girls from sales departments of stores are learning to make out delivery slips; boys from electrical concerns are learning house wiring.

*General Improvement Classes.*— As children enter this school they are placed in a general improvement class known as the "reservoir class." The purpose of this class is to give the teachers in the school an opportunity to study the practical needs of the children so as to place them intelligently in the various departments of the school and at the same time to give them opportunities to proceed with the improvement of their education and to become acquainted with the purposes of the school. After a period, usually from two to four

weeks, the children are enrolled in departments which will best serve their needs. Throughout the course two hours a week of general improvement work are given. A small group is given four hours a week of general improvement work during the entire time of their attendance at the school.

*Pre-Vocational Classes.*—These classes attempt to find out the aptitudes of the pupils by giving them a “try-out” experience with a number of occupations in several of the shops, work rooms or clerical departments. Most of the children in this school are in pre-vocational classes. The school is equipped to give experience in twelve occupations.

*Out-of-Work Classes.*—Many pupils who are allowed to go to work lose their positions for one reason or another and, in accordance with the terms of the law, are supposed to be back in a day school. The continuation schools in Boston are supposed to provide twenty hours of instruction weekly for these children in “out-of-work classes.” Lack of room prevents the pupils from receiving this instruction. At present they are required to report once daily to the school until they secure another position.

*Follow-up Work for Teachers.*—By the rules of the School Committee the teachers are required to give six hours daily to the Continuation School. Each teacher does four hours of instruction daily with a group of twenty to twenty-five pupils and has five such groups during the week. The remaining two hours are spent in what is termed “follow-up work” for the pupils in their charge. This work consists of visiting the places where the pupils are employed, getting acquainted with the conditions of employment, consulting with the parents of the pupils at their homes, placing “out-of-work” children, and in fact doing anything which promotes the general welfare of the pupils.

### *Plant.*

The school at 25 La Grange street houses the larger part of the compulsory continuation school classes. This building includes rooms for class work, bookkeeping and typewriting; shops for sewing, millinery, power sewing machines, machine shop, woodwork, electrical work, printing and bookbinding. The equipment seems to be well adapted for the purpose to which it is applied.

In one or two cases, as in the machine shop, the equipment is of the right kind, but there is not enough of it to accommodate the number of pupils needing this work. Each department appears to be running at full capacity practically all of the time. In the rented centers, simple class room furniture is provided. The department stores provide quarters for the classes conducted in their own buildings. The numbers accommodated in these plants, as enrolled December 13, 1915, are:

In 25 La Grange street . . . . .	2,054
In rented centers . . . . .	284
In stores . . . . .	164
In factories . . . . .	291
Total . . . . .	<u>2,793</u>

#### *Characteristics of the Work.*

The school has been in existence for only a short time, but the various lines of work have begun to take shape and to indicate that the aims of the school are carried out. The pupils in the various groups are having an experience which offers an exceptional background of interest in applying general improvement work. The regular school rarely has such an opportunity to make the concrete application in educational work that the continuation schools have. In the Continuation School, training in arithmetic deals with the kinds of work in which the children are employed and the need for which they have a very real appreciation. Their training in English utilizes terms and expressions met with in the daily work. Clerical training is based on the forms and transactions brought in from the places where the students are employed. The methods of instruction and the course of study are particularly well adapted to the students in these classes. The shops are typical of those in the industries. The product is turned out by methods that are used in the industry and it has a commercial value. The pupils are grouped as far as possible in relation to academic attainment and occupation. The instruction is suitable in content and efficient in method.

#### *Cost and Statistics.*

The statements of costs for compulsory continuation schools are furnished by the Business Agent.



**COMPULSORY CONTINUATION SCHOOL.****Cost for Period November 1, 1914, to October 31, 1915.**

Salary of principal . . . . .	\$2,431 07
Salaries of clerks . . . . .	1,403 83
Salaries of teachers . . . . .	26,729 32
Books and supplies and incidentals . . . . .	2,026 49
Salaries of janitors . . . . .	1,255 72
Fuel . . . . .	334 10
Power . . . . .	101 43
Light . . . . .	418 16
Janitors' supplies . . . . .	105 81
Replaced equipment (machinery and tools) . . . . .	38 55

**\$34,844 48**

Credit for work done for other units . . . . . 47 43

**\$34,797 03**Cost exclusive of administration, supervision and general charges and new equipment **\$34,797 03**

Number of pupil hours of instruction based on number belonging 270,695

Number of pupil hours of instruction based on attendance, 235,920

Cost per pupil hour on above total based on number belonging \$0.128

Cost per pupil hour on above total based on attendance \$0.148

Above cost brought down **\$34,797.03**Cost of administration, supervision and general charges **5,949.93**Cost with cost of administration, supervision and general charges added, exclusive of land, buildings, furniture repairs, depreciation, repairs and sinking fund charges, **\$40,746.96**

Cost per pupil hour based on above total on number belonging .15

Cost per pupil hour based on above total on attendance .173

The Business Agent reports that the City of Boston will receive reimbursement from the state for \$17,281.52 as the state's share of maintenance expended for this Continuation School. This amount has not been deducted from the statement of costs.

Expenditures for equipment are . . . . .	\$8,562 34
Expenditures for rent are . . . . .	5,200 00
Expenditures for taxes are . . . . .	1,188 00

**SALESMANSHIP COURSES IN RENTED BUILDINGS.****Financial Year 1914-15.**

Salaries of teachers . . . . .	\$380 17
Supplies and incidentals, * 1.3 per cent of amount charged to Continuation Schools . . . . .	17 48
<i>Carried forward</i> . . . . .	<b>\$397 65</b>

\* As estimated by Director of Evening and Continuation Schools.

<i>Brought forward</i> . . . . .	\$397 65
Supervision:	
* 1 per cent of the fraction of the cost of the office of Director of Evening and Continuation Schools charged to Continuation Schools	38 55
* 10 per cent of the fraction of the cost of the office of Director of Practice in Courses in Salesmanship charged to Continuation Schools	92 22
† 1.3 per cent of other administration, supervision and general charges	49 63
† 1.3 per cent of the salaries of Mr. Winter, Mr. White, Miss Blanchard, Miss Ginn, Miss Appel and Miss Riordan charged to Continuation Schools	39 32
Total . . . . .	<u>\$617 37</u>
Total number of pupil hours based on attendance . . . . .	1.964
‡ Cost per pupil hour . . . . .	\$0.314

The supervision charge for this course is 36 per cent of the entire cost. This will probably be less for the year 1915-16.

#### SALESMANSHIP COURSES IN STORES.

##### Financial Year 1914-15.

Salaries of teachers	\$3,113 13
Supplies and incidentals, § 13 per cent of the amount charged to Continuation Schools	174 76
Supervision:	
* 10 per cent of the fraction of the cost of the office of Director of Evening and Continuation Schools charged to Continuation Schools	385 45
* 70 per cent of the fraction of the cost of the office of Director of Practice in Courses in Salesmanship charged to Continuation Schools	645 52
† 13 per cent of other administration supervision and general charges	496 27
† 13 per cent of the salaries of Mr. Winter, Mr. White, Miss Blanchard, Miss Ginn, Miss Appel and Miss Riordan, charged to Continuation Schools	393 17
Total . . . . .	<u>\$5,208 30</u>
Total number of pupil hours based on attendance . . . . .	19,150
§ Cost per pupil hour . . . . .	\$0.272

The supervision charge for this course is 36 per cent of the entire cost.

This will probably be less for the year 1915-16.

\* As estimated by Director of Evening and Continuation Schools.

† Percentage of total pupil hours for these courses.

‡ Exclusive of rent, fuel, light, power or janitor service.

§ Quarters are furnished by owners of stores without cost for rent, fuel, light, power or janitor services.

The estimated pupil hour costs given by the Business Agent in the tables above is based on four hours' attendance for each pupil at the school. The pupil hour cost should be based on the number of teacher hours of service since they are all given for the benefit of the pupils. Taking that into account, the actual per pupil hour cost based on average enrollment is 10 cents and not 15 cents as presented by the Business Agent, and based on the average attendance is 11.5 cents and not 17.3 cents as reckoned by the Business Agent. In like manner a reduction of one third should be made in the Business Agent's charge against salesmanship courses in stores and in rented buildings. An unusually large amount is charged against supervision of the salesmanship courses. With the extension of the work this cost will be materially reduced. The following tables, giving enrollment, grades, ages and other statistics, are furnished by the Director of Evening and Continuation Schools.

**CLASSIFICATION OF 588 BOYS, SHOWING THE NATURE OF THEIR EMPLOYMENT AND THE CHARACTER OF THEIR SCHOOL WORK.**

CLASSIFICATION IN INDUSTRY.	Pre-Vocational.	General Improvement.	Trade Extension.
<b>Production:</b>			
Shoeworkers.....	24	4	.....
Printing.....	.....	2	1
Plumber's helper.....	.....	3	.....
Gasfitting.....	1	.....	.....
Machine shop.....	.....	.....	1
Tinsmith.....	.....	2	.....
Laundry.....	.....	1	.....
Barber.....	.....	2	.....
Engraving.....	2	1	.....
Fisherman.....	3	1	.....
Leather apprentice.....	3	.....	.....
Millwork.....	2	6	.....
Woodworking.....	2	.....	1
Packing.....	2	4	.....
Shopwork.....	13	9	.....
Wire coiler.....	3	3	.....
Mattress factory.....	3	2	.....
Tailor.....	.....	2	.....
Miscellaneous.....	2	3	.....
	— 60	— 45	— 3
<b>Personal service:</b>			
Bootblack.....	2	4	.....
Usher, janitor.....	4	2	.....
	— 6	— 6	.....
<b>Clerical:</b>			
Office work.....	6	7	11
	— 6	— 7	— 11
<b>Mercantile:</b>			
Assistant shipper.....	2	1	.....
Bundle boys.....	20	2	.....
Storework.....	10	6	.....
Order boys.....	19	12	.....
Stock boys.....	2	4	.....
	— 53	— 25	.....
<b>Messengers:</b>			
Errands.....	197	86	.....
Western Union and Postal telegraph.	30	21	.....
Pedler helpers.....	13	19	.....
	— 240	— 126	.....
	365	209	14

Many boys classified under "general improvement" are placed there temporarily. It is reported by the division head that probably a more correct classification will give a total to the pre-vocational of 465 and to the general improvement group of 109.

The figures for messengers are significant — 240 in the pre-vocational column and 126 in the general improvement column, a total of 366 out of 588 who are in the errand type of employment.

**CLASSIFICATION OF 518 GIRLS, SHOWING THE NATURE OF THEIR EMPLOYMENT AND THE CHARACTER OF THEIR SCHOOL WORK.**

CLASSIFICATION IN INDUSTRY.	Pre-Vocational.	General Improvement.	Trade Extension.
<b>Production:</b>			
Shoeworkers.....	111	1	.....
Paper folders.....	6	.....	.....
Laying cloth.....	17	1	.....
Curtain trimming.....	12	2	.....
Waist finisher.....	8	.....	.....
Stocking looper.....	4	1	.....
Cloth trimmer.....	1	.....	.....
Candy wrapper.....	12	1	.....
Dressmaking.....	2	1	4
Basting.....	2	.....	3
Curtain folder.....	2	1	.....
Sewing.....	10	1	40
Candy packer.....	7	2	.....
Color setter.....	6	.....	.....
Shop work.....	20	1	.....
Nail sorter.....	16	3	.....
Rag sorter.....	5	1	.....
Power machine.....	1	.....	3
Millinery.....	.....	.....	2
Miscellaneous.....	8	.....	.....
	— 250	— 16	— 52
<b>Personal Service:</b>			
Waitress.....	2	.....	.....
Housework.....	2	2	2
Nurse.....	2	.....	.....
	— 6	— 2	— 2
<b>Clerical:</b>			
Bookkeeping.....	1	.....	3
Addressing.....	1	.....	.....
Office filing, etc.....	1	1	3
	— 3	— 1	— 6
<b>Mercantile:</b>			
Bundle girls.....	29	1	.....
Clerk.....	4	1	.....
Salesgirl.....	6	4	1
Cashier.....	4	3	.....
Stock girl.....	2	.....	.....
Check girl.....	1	.....	.....
	— 46	— 9	— 1
<b>Messengers:</b>			
Stores, etc.....	122	2	.....
	— 122	— 2	.....
	427	30	61

A large number of girls enter employment as low grade producers. This is not true of boys of this age.

### TOTAL NUMBER OF PUPILS IN COMPULSORY CONTINUATION SCHOOLS BY DEPARTMENTS.

Number of Different Pupils Belonging on December 3, 1915.

	Boys.	Girls.
<b>In Continuation Schools, La Grange Street:</b>		
1. Entering group.....	302	102
2. Office practice, store practice, and general improvement.....	399	162
3. Woodworking.....	161	
4. Metal working.....	221	
5. Printing.....	131	9
6. Electricity.....	196	
7. Power machine operating.....	1	96
8. Dressmaking.....		274
<b>Totals.....</b>	<b>1,411</b>	<b>643</b>
<b>In Department Stores:</b>		
1. W. & A. Bacon Company.....	38	
2. Jordan Marsh Company.....	21	15
3. L. P. Hollander Company.....	6	40
4. R. H. White Company.....		44
<b>Totals.....</b>	<b>65</b>	<b>99</b>
<b>In Factories:</b>		
1. Thomas G. Plant Company.....	68	167
2. Thomson-Crocker Company.....	9	20
3. Boutwell, Fairclough & Gold.....	2	25
<b>Totals.....</b>	<b>79</b>	<b>212</b>
<b>In Rented Centers:</b>		
1. 48 Boylston Street (Store Practice).....	32	59
2. 52 Tileston Street (Household Arts).....		195
<b>Totals.....</b>	<b>32</b>	<b>252</b>
<b>Pupils in transit or otherwise not accounted for in above figures.....</b>	<b>56</b>	<b>1,206</b>
<b>Total males.....</b>	<b>1,587</b>	
<b>Total females.....</b>		<b>1,206</b>
<b>Unaccounted for.....</b>	<b>2,793</b>	<b>56</b>
<b>Total.....</b>	<b>2,849</b>	

## RECEIVED CERTIFICATES FOR THE FIRST TIME.

## Reasons for Leaving School—June, 1915.

	Males.	Females.	Total.
1. Reasons related to economic conditions in the family.	41	30	71
2. Reasons related to conditions in the school.	67	18	85
3. Reasons related to personal feelings of child attitude of parents.	4	8	12
4. Reasons related only to vocational opportunity offered.	2	.....	2
5. No reason given.....	.....	.....	.....
6. Will probably work only during vacation.	10	7	17
	124	63	187

## RECEIVED CERTIFICATES FOR THE FIRST TIME.

## Initial Wage — June, 1915.

	\$1	\$2	\$3	\$4	\$5	\$6	\$7	\$8	\$9	\$10	Does not Know.	Piece Work.	Total.
Males.....	...	2	13	44	23	13	...	...	...	...	27	2	124
Females.....	1	3	6	12	2	1	1	...	...	...	33	4	63
Totals.....	1	5	19	56	25	14	1	...	...	...	60	6	187

## NUMBER WHOSE PARENTS ARE NOT LIVING.

## Girls — June, 1915.

Father.	Mother.	Both.	Total.
17	11	1	29

The total number from which this is taken, 141; slightly over 20 per cent.

## NUMBER WHOSE PARENTS ARE NOT LIVING.

## Boys — June, 1915.

Father.	Mother.	Both.	Total.
32	14	2	48

The total number from which this is taken, 230; slightly over 20 per cent.

PUPILS ELIGIBLE FOR CONTINUATION SCHOOL RECEIVING  
CERTIFICATES FOR THE FIRST TIME.

Boys — June, 1915.

OCCUPATION.	Grade Last Attended in School.	Age.
1 Cotton mill.....	4	14
1 Bootblack.....	5	14
1 Western Union Telegraph.....	6	14
1 Bootblack.....	6	14
1 Grocery.....	1st year H. S.	14
1 Barber (apprentice).....	7	14-1
1 Dime messenger.....	5	14-2
1 Shoe factory.....	6	14-2
1 Paperhanger.....	8	14-2
1 Shoe factory.....	8	14-2
1 Grocery.....	8	14-3
1 Florist.....	8	14-3
1 Western Union Telegraph.....	Graduated	14-3
1 Office.....	1st year H. S.	14-3
1 Dry goods.....	1st year H. S.	14-3
1 Carpenter (apprentice).....	Pre-vocational	14-3
1 Grocery.....	7	14-4
1 Bootblack.....	7	14-4
1 Peddler.....	7	14-4
1 Jewelry factory.....	7	14-4
1 Carpet factory.....	Graduated	14-5
1 Shoe factory.....	1st year H. S.	14-5
1 Hardware store.....	1st year H. S.	14-5
1 Grocery.....	7	14-6
1 Western Union Telegraph.....	7	14-6
1 Bottling.....	4	14-7
1 Candy store.....	6	14-7
1 Bakery.....	Graduated	14-7
1 Jewelry store.....	1st year H. S.	14-7
1 Office.....	1st year H. S.	14-7
1 Machine shop.....	1st year H. S.	14-7
1 Western Union Telegraph.....	7	14-8
1 Machine shop.....	7	14-8
1 Office.....	Graduated	14-8
2 Shoe factory.....	Graduated	14-8
1 Department store.....	1st year H. S.	14-8
1 Fishing.....	4	14-9
1 Grocery.....	5	14-9
1 Plumber (apprentice).....	6	14-9
1 Machine shop.....	6	14-9
1 Peddler.....	7	14-9
1 Clothing factory.....	7	14-9
1 Grocery.....	Graduated	14-9
1 Office.....	Graduated	14-9
1 Carpet factory.....	Graduated	14-9
1 Stationery store.....	2d year H. S.	14-9
1 Piano factory.....	7	14-10
1 Peddler.....	7	14-10
1 Office.....	Graduated	14-10
1 Druggist.....	1st year H. S.	14-10

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## Boys — June, 1915.—Continued.

OCCUPATION.	Grade Last Attended in School.	Age.
1 Office.....	1st year H. S.	14-10
1 Bakery.....	5	14-11
1 Shoe factory.....	7	14-11
1 Cotton mill.....	7	14-11
1 Office.....	8	14-11
1 Paint store.....	8	14-11
1 Boston News Bureau.....	Graduated	14-11
1 Shoe factory.....	1st year H. S.	14-11
1 Machine shop.....	1st year H. S.	14-11
1 Department store.....	2d year H. S.	14-11
1 Machine shop.....	5	15
1 Grocery.....	6	15
1 Dime messenger.....	7	15
1 Peddler.....	Graduated	15
1 Machine shop.....	Graduated	15
1 Clothing store.....	8	15-1
1 Shoe store.....	1st year H. S.	15-1
1 Druggist.....	6	15-2
1 Machine shop.....	7	15-2
1 Laundry.....	7	15-2
1 Grocery.....	8	15-2
1 Office.....	1st year H. S.	15-2
1 Fruit store.....	5	15-3
1 Grocery.....	6	15-3
1 Grocery.....	7	15-3
1 Office.....	7	15-3
1 Dry goods.....	7	15-3
1 Post card novelties.....	2d year H. S.	15-3
1 Bakery.....	5	15-4
1 Peddler.....	5	15-4
1 Laundry.....	6	15-4
1 Grocery.....	7	15-4
1 Express company.....	7	15-4
1 Machine shop.....	7	15-4
1 Mattress factory.....	8	15-4
1 Hardware store.....	1st year H. S.	15-4
1 Curtain factory.....	1st year H. S.	15-4
1 Button factory.....	1st year H. S.	15-4
1 Grocery.....	1st year H. S.	15-4
1 Electrician (apprentice).....	2d year H. S.	15-4
1 Dry goods.....	3d year H. S.	15-4
1 Auto repair.....	Graduated	15-4
1 Clothing store.....	5	15-5
1 Machine shop.....	6	15-5
1 Fruit shop.....	8	15-5
1 Grocery.....	1st year H. S.	15-5
1 Parcel delivery.....	1st year H. S.	15-5
1 Machine shop.....	3d year H. S.	15-5
1 Bootblack.....	4	15-6
1 Clothing factory.....	4	15-6
1 Grocery.....	5	15-6
1 Western Union Telegraph.....	7	15-6
1 Department store.....	Graduated	15-6
1 Cotton mill.....	Graduated	15-6

Boys — June, 1915.— *Concluded.*

OCCUPATION.	Grade Last Attended in School.	Age.
1 Book store.....	1st year H. S.	15-6
1 Office.....	1st year H. S.	15-6
1 Wholesale rubber company.....	1st year H. S.	15-6
		42
1 Grocery.....	5	15-7
1 Fruit store.....	4	15-7
1 Grocery.....	6	15-7
1 Dime messenger.....	6	15-7
1 Tailor.....	7	15-7
1 Cotton mill.....	7	15-7
1 Shoe factory.....	Graduated	15-7
1 Paint store.....	Graduated	15-7
1 Grocery.....	Pre-vocational	15-7
1 Candy factory.....	4	15-8
1 Western Union Telegraph.....	7	15-8
1 Shoe factory.....	7	15-8
1 Newspaper.....	8	15-8
1 Optician.....	Graduated	15-8
1 Shoe factory.....	Graduated	15-8
1 Dental laboratory.....	1st year H. S.	15-8
		16
Total.....		124

PUPILS ELIGIBLE FOR CONTINUATION SCHOOL RECEIVING  
CERTIFICATES FOR THE FIRST TIME.

## Girls — June, 1915.

OCCUPATION.	Grade Last Attended in School.	Age.
1 Grocery.....	5	14
1 Department store.....	6	14
1 Shoe factory.....	6	14
1 Candy factory.....	6	14
1 American Water Supply (inspecting cups) ..	7	14
1 Candy store.....	7	14
1 Tailor.....	Graduated	14
1 Grocery.....	5	14-1
1 Grocery.....	6	14-1
1 Department store.....	7	14-1
1 Shoe factory.....	7	14-1
1 Shoe factory.....	Graduated	14-1
1 Candy store.....	6	14-2
1 Cotton factory.....	7	14-2
1 Shoe factory.....	8	14-2
1 Candy factory.....	7	14-3
1 Fish factory.....	8	14-3

Girls—June, 1915.—*Concluded.*

OCCUPATION.	Grade Last Attended in School.	Age.	
1 Clothing factory.....	4	14-4	
1 Shoe factory.....	7	14-4	
1 Fruit store.....	5	14-5	20
1 Grocery.....	7	14-8	
1 Office.....	Graduated	14-8	
1 Grocery.....	1st year H. S.	14-8	
1 Office.....	6	14-10	
1 Clothing factory.....	6	14-10	
1 Department store.....	6	14-10	
1 Office.....	2d year H. S.	14-10	
1 Carpet factory.....	4	14-11	
1 Fruit store.....	4	14-11	
1 Candy factory.....	6	14-11	
1 Nurse girl.....	1st year H. S.	14-11	
1 Cotton mill.....	4	15	
1 Tailor.....	4	15	13
1 Curtain factory.....	5	15-1	
1 Housework.....	6	15-1	
1 Department store.....	1st year H. S.	15-1	
1 Clothing factory.....	6	15-2	
1 Shoe factory.....	6	15-2	
1 Jewelry factory.....	6	15-3	
1 Grocery.....	2d year H. S.	15-3	
1 Cotton mill.....	2d year H. S.	15-3	
1 Clothing factory.....	4	15-4	
1 Clothing factory.....	5	15-4	
1 Candy factory.....	2d year H. S.	15-4	
1 Candy factory.....	4	15-5	
1 Shoe factory.....	7	15-5	
1 Printer.....	2d year H. S.	15-5	
1 Carpet factory.....	2d year H. S.	15-5	
1 Clothing factory.....	5	15-6	
1 Cotton mill.....	8	15-6	
1 Grocery.....	Graduated	15-6	
1 Nurse girl.....	1st year H. S.	15-6	
1 Office.....	3d year H. S.	15-6	
1 Shoe factory.....	3d year H. S.	15-6	21
2 Clothing factory.....	5	15-7	
1 Nurse girl.....	7	15-7	
1 Department store.....	8	15-7	
1 Office.....	Graduated	15-7	
1 Office.....	1st year H. S.	15-7	
1 Curtain factory.....	1st year H. S.	15-7	
1 Clothing factory.....	1st year H. S.	15-7	8
Total.....			62

**GRADE LAST ATTENDED BY CHILDREN RECEIVING EMPLOYMENT CERTIFICATES FOR THE FIRST TIME.**

**April to November, Inclusive, 1915.**

GRADE.	APRIL.		MAY.		JUNE.		JULY.		AUGUST.		SEPTEMBER.		OCTOBER.		NOVEMBER.		TOTAL.	
	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.
Third.....	3	1	4	7	7	13	16	1	1	1	13	4	1	3	32	29	61	61
Fourth.....	7	3	4	11	8	22	24	2	2	2	22	23	11	11	85	64	149	149
Fifth.....	11	5	19	17	13	33	57	45	3	3	45	28	19	9	163	149	312	312
Sixth.....	28	4	10	7	10	22	70	50	4	3	50	69	36	32	242	161	403	403
Seventh.....	8	3	14	5	4	1	38	35	1	1	35	28	16	34	134	101	235	235
Eighth.....	5	1	4	20	5	1	122	135	2	3	122	98	66	69	327	266	593	593
Ninth.....	24	7	22	10	8	1	61	57	1	4	61	71	49	41	245	183	428	428
Elementary School Graduates, 1st year High School.....	6	1	9	4	6	1	24	12	2	2	24	22	16	27	92	68	160	160
2d year High School.....	1	1	1	2	2	1	2	4	1	1	2	2	4	3	12	7	19	19
3d year High School.....	1	1	1	2	2	1	2	4	1	1	2	2	4	3	12	7	19	19
4th year High School.....	1	1	1	2	2	1	2	4	1	1	2	2	4	3	12	7	19	19
Pre-vocational classes.....	1	1	1	2	2	1	2	4	1	1	2	2	4	3	12	7	19	19
Total.....	93	25	96	55	124	63	5	15	11	20	415	369	218	247	1,029	1,336	2,365	2,365
Total.....	118		151		187		20		31		784		563		511		2,365	

A study of the tables shows that the average length of attendance in the school is short. Of the 124 boys who entered the school in June, 1915, 58 were over fifteen years of age (nearly 50 per cent) and of the girls, 30 were over fifteen years of age. During this same month there were 38 children who entered the school giving their ages as fifteen years, six months and over. The term of attendance, therefore, of more than 50 per cent of the children is less than one year. An extension of the age of required attendance in these schools would be of benefit to these children.

The table showing the grade last attended by children receiving employment certificates for the first time from April to November, 1915, indicates that large numbers come from each of the grades above the fourth and below the second year of the high school. Thirty-nine per cent of the children enrolled during this period left school in grades below the eighth. Thirty-five per cent of the children left school either from the eighth grade or as elementary school graduates. Twenty-six per cent left at some time during their high school course below the fourth year.

The continuation school in Boston or in any other city faces a problem of great magnitude and complexity. This school deals with the large number of children who leave school and go to work in unequal numbers during each school month. Children attend the school for periods varying from four months to two years. They come from practically all grades from the fourth grade elementary to the third year high school. They are working in a large variety of occupations.

#### *Conclusions and Recommendations.*

The school aims to give educational and vocational help to children fourteen to sixteen years of age who have entered employment. The committee believes that the school is realizing this aim in carrying on this work at a cost which is not excessive. Continued experience in the work will make it still more effective. All employers of these children who were questioned about the value of the continuation school to their employees expressed a favorable opinion.

Children of these ages enter employment either as a result of economic necessity, or because they were unable to pursue regular school courses advantageously. The

Continuation School gives them an opportunity for improvement when they most need it. The city cannot afford to neglect its responsibility to these children. The four hours per week of school work which are specifically applied to the needs of each individual probably has an educational value several times as great as an equal time given in the regular schools. The cost of this work is not out of proportion to that of courses given to children of the same age in the regular schools.

One of the contributions that the Continuation School makes for fourteen and sixteen year old children is secured through the vocational guidance and personal follow-up-work.

It is evident from a study of this school that it renders a great service in connection with general improvement work which is based for the most part on the experiences of the pupils.

The committee recommends that the experiment be continued according to the plans already made, believing that the school has already demonstrated its worth and that it is efficiently meeting a distinct responsibility that is not discharged by any other institution.

#### THE TRADE SCHOOL FOR GIRLS.

The Trade School for Girls was opened in July, 1904, under private auspices. The School Committee, in coöperation with the State Board of Education, assumed responsibility for the school in September, 1909.

By meeting certain standards, the school is approved by the state and the city is reimbursed from the state treasury for one half of the maintenance expenditures.

#### *Aim.*

This school plans to train girls fourteen to twenty-five years of age for profitable employment in millinery, power machine operating and catering. The Girls' Trade School puts special emphasis on training for the handicraft trades as shown by the enrollment of the school on November 30, when 87 per cent of the membership was in the dressmaking and millinery trades.

#### *Organization.*

The staff of the school is organized as follows: Master, 1; first assistants, 4; assistants, 2; vocational assistants,

2; trade assistants, 1; helpers, 14; aids, 17; students' aids, 4; bookkeepers, 1; clerical assistants, 1; assistant instructor of physical training, 1; a total staff of 59.

The enrollment of the school by departments November 30, 1915, was as follows: Dressmaking, 398; millinery, 94; machine operating, 47; catering, 27. The total enrollment was 566. The total enrollment of the school for 1914-15 was 772.

The school has a daily session of eight and one-half hours, a longer day than is given in most trade schools. The term is forty weeks of forty-two and one-half hours. The course is two years in length. Each department of the school has a separate organization. One fifth of the time is given to academic work. The school is organized to place the girls in employment and to keep a follow-up record of each girl for several years after she leaves the school.

#### *Plant.*

The school is located at 616, 618 and 620 Massachusetts avenue. Number 620 was formerly used as a convent school, numbers 616 and 618 were residences. The plant has an assembly room, also serving as a gymnasium, offices, work rooms, class room, power-operating room and lunch rooms. The school is crowded, many of the work rooms are small, and the girls work under unfavorable conditions.

#### *Characteristics of the Work.*

The work of the school is based on orders for custom trade or on the needs of the school itself, as in the catering department. The extent to which the order work is produced is shown by a report on the amount of income for the sale of product, \$11,159.25, as given on page 108, Bulletin No. 43, State Board of Education, 1913-14, and by a report from the Business Agent showing cash received from work and products as \$10,584.44 for the nine months, December 1, 1914, to August 31, 1915. This large amount of business is an indication that the product met commercial standards.

The principal of the school reports that the average length of time these girls spend in preparing for the trades is as follows: Dressmaking, 15 months; millinery, 14 months; straw machine operating, 15 months; cloth machine operating, 12 months; catering, 14 months.

While the length of the course in the school is given as two years, the actual time spent by the girls varies according to individual abilities. As soon as the girls are prepared to enter trades, they are allowed to leave the school and are assisted in finding positions. The number of girls placed in the trades is shown in the table of statistics given on page 113. In 1914-15, 163 entered the trade trained for.

The girls who enter this school show a strong preference for hand needlework. Girls who have failed to do successful work in any of the handicraft trades are urged to take up power-operating. Girls who know how to operate power machines are in demand in the City of Boston. The initial wage and the opportunities for advancement compare favorably with those of many of the occupations for women. Considerable attention has been given to this matter by the School Committee and advisory board of the school, conferences have been held, a report has been made, and an experimental branch is being conducted in North Bennet street, in order to determine what should be done to make the training in power-operating effective. The Girls' Trade School is not in a location which attracts girls to it who expect to enter power-operating. The School Committee has been asked to establish branches of the school for training in power-operating in the districts where this industry is located.

#### *Costs and Statistics.*

The accompanying table furnished by the Business Agent covers expenditures for the Trade School for Girls from December 1, 1910, to August 31, 1915.



## TRADE SCHOOL FOR GIRLS. (Including Day and Evening Classes.)

	Dec. 1, 1914, to Aug. 31, 1915.	Dec. 1, 1913, to Nov. 30, 1914.	Dec. 1, 1912, to Nov. 30, 1913.	Dec. 1, 1911, to Nov. 30, 1912.	Dec. 1, 1910, to Nov. 31, 1911.
Administration:					
Supervision and general charge outside school staff <sup>1</sup> .....	\$2,936 06	\$2,686 62	\$2,514 93	\$1,298 81	\$739 07
Office expenditures <sup>2</sup> .....	1,491 53	1,776 92	1,617 77	1,495 04	836 96
Instruction:					
Director.....	2,475 00	3,210 00	3,090 00	2,740 00	2,195 00
Teachers.....	29,182 58	35,523 42	32,148 74	25,526 15	22,153 30
Materials.....	7,692 50	8,355 57	9,493 30	7,750 33	9,419 02
Auxiliary agencies.....					
Plant operation <sup>3</sup> .....	3,520 06	4,579 15	3,343 37	2,619 76	2,614 81
Repairs and replacements <sup>4</sup> and <sup>7</sup> .....	382 00	2,318 77	1,959 42	4,037 18 <sup>7</sup>	1,573 20
Buildings and grounds, new and alterations.....	75 00	24,720 43 <sup>8</sup>	35,000 00 <sup>8</sup>	.....	1,153 60
Equipment, new, with cartage, etc., on same.....	21 15	2,283 76	6,773 28 <sup>9</sup>	.....	733 65
All other items not classified.....					
Total <sup>5</sup> .....	\$47,775 88	\$85,454 64	\$95,940 81	\$45,467 27	\$41,418 61
Income:					
Tuition claims <sup>4</sup> .....	4,787 50	6,484 00	6,151 53	4,794 50	3,643 78
Cash received from work and products <sup>11</sup> .....	10,584 44	10,904 26	12,110 08	10,331 00	9,460 47
Total income.....	\$15,371 94	\$17,388 26	\$18,261 61	\$15,125 50	\$13,104 25
Net total <sup>6</sup> .....	\$32,403 94	\$68,066 38	\$77,679 20	\$30,341 77	\$28,314 36
Reimbursement from state.....	\$16,153 89	\$20,531 14	\$17,952 96	\$15,170 89	\$11,895 95

NOTE.— Proportion of expense for evening classes computed from student hours, 1913-14, 36; 1914-15, 36.

<sup>1</sup> Percentage of salaries of supervisory officers.

<sup>2</sup> Including clerical services.

<sup>3</sup> Building and equipment.

<sup>4</sup> Paid or unpaid.

<sup>5</sup> Exclusive of interest and sinking fund charges.

<sup>6</sup> Heat, light and power.

<sup>7</sup> New plumbing.

<sup>8</sup> Purchase of 618 and 620 Massachusetts avenue.

<sup>9</sup> Purchase of 616 Massachusetts avenue.

<sup>10</sup> Furnishings for buildings.

<sup>11</sup> Does not include several thousand dollars worth of work done by the girls themselves each year.

Owing to the fact that the returns for 1914 cover expenditures only to August 31 instead of November 30, these figures do not offer a basis of determining actual cost, hence the figures for 1913-14 are selected as a basis of determining the per capita costs. Since the Business Agent's statement does not differentiate between the day and evening work, returns for this year are taken from the report of the Commissioner of Education, Bulletin No. 43, and are as follows:

Administration.....	\$7,385 78
Operation of plant.....	4,407 43
Upkeep of plant.....	2,231 82
Teachers' salaries.....	31,101 67
Instruction charges.....	11,131 95

Total maintenance expenditures.....	<u>\$56,258 65</u>
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Average enrollment.....	368
Average attendance.....	326

	PER CAPITA COST BASED ON:	
	Average Enrollment.	Average Attendance.
Overhead charge.....	\$20 07	\$22 66
Instruction.....	84 52	95 41
Instruction supplies.....	30 24	34 14
Upkeep and plant operation.....	18 03	20 36
Total.....	<u>\$152 88</u>	<u>\$172 57</u>
Reduced by value of product per capita.....	34 80	39 60
Net per capita cost.....	<u>\$118 08</u>	<u>\$132 97</u>

The work of the Manhattan Trade School of New York City is comparable with that of the Boston Trade School. The per capita cost for the Manhattan Trade School based on average daily attendance is reported to be \$133.33 without deducting the value of the product, and \$99.01 for the net per capita cost with the value of the product deducted. The average daily attendance is 513. These figures are taken from the annual financial and statistical report of the Board of Education, New York City. The statement of product for the Boston Trade School for Girls, 1913-14, is:

Total product, cash and credit.....	\$11,159 25
Product for school itself.....	82 01
Product for other city departments.....	1,567 00

Total product.....	<u>\$12,808 26</u>
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The net pupil hour cost based on enrollment was.....	\$0.089
The net pupil hour cost based on attendance was.....	.10

The above facts show that the school is economically managed and efficiently administered. A very large proportion of the product is sold for actual cash. The nature of the product is such that it sells more readily for cash than that which the boys produce. The reimbursement from the state treasury was \$20,531.44. The statistics furnished by the principal of the school show, by years and by trades, the enrollment, the number having taken training and having entered the trades.

The following report concerning the enrollment and attendance and placement of girls, including the notes, was furnished by the principal of the school.

## TRADE SCHOOL FOR GIRLS.

Year.	TOTAL ENROLLMENT.						AVERAGE MEMBERSHIP.		AVERAGE ATTENDANCE.		PLACED IN TRADE TRAINED FOR.					SELF-PLACED IN TRADE TRAINED FOR.							
	Dressmaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	July and August.	September to June.	July and August.	September to June.	Dressmaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	Dressmaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	
1900-10.....	240	19	21	9	...	321	*	196	*	174	57	10	4	6	...	77	5	4	...	...	...	...	9
1910-11.....	287	64	29	24	1	405	*	237	*	203	38	14	12	6	...	70	22	4	2	1	...	...	29
1911-12.....	265	98	27	42	10	442	112	266	90	232	51	16	15	18	...	100	11	7	3	...	...	21	
1912-13.....	369	158	23	38	17	605	147	340	128	306	77	23	15	18	...	133	10	1	3	1	2	17	
1913-14.....	376	133	27	44	22	602	163	368	140	326	65	36	16	14	5	136	7	1	1	1	...	10	
1914-15.....	511	135	57	35	34	772	175	458	158	409	95	17	14	7	6	139	18	2	1	3	...	24	

\* No school.

## TRADE SCHOOL FOR GIRLS.

Year.	REMAINED BUT ONE YEAR IN TRADE.					BUT TWO YEARS.					THREE YEARS OR MORE. (STILL IN TRADE.)							
	Dressmaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	Dressmaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	Dressmaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.
1909-10.....	18	5	1	3	...	27	4	2	...	...	...	9	35	3	3	3	...	44
1910-11.....	11	6	5	1	...	23	5	4	1	1	...	11	22	4	6	3	...	36
1911-12.....	14	11	6	9	...	43	6	2	2	3	...	12	31	3	5	6	...	45
1912-13.....	29	10	5	7	...	51	24	11	1	2	...	43	24	2	4	9	...	39
1913-14.....	11	13	1	6	...	32	19	8	5	4	2	38	35	14	10	4	3	66

## TRADE SCHOOL FOR GIRLS.

Year.	SELF-PLACED IN OTHER OCCUPATIONS.						RETURNED TO REGULAR SCHOOL.						WITHDREW VOLUNTARILY OR FOR CAUSE.					
	Dreemaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	Dreemaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.	Dreemaking.	Millinery.	Cloth M. O.	Straw M. O.	Catering.	Totals.
1909-10.	32	6	2	4	.....	44	3	.....	1	1	.....	5	64	14	5	2	.....	85
1910-11.	36	7	11	1	.....	55	10	2	1	.....	.....	13	69	13	3	2	.....	77
1911-12.	13	7	3	3	.....	26	5	3	1	.....	2	11	66	25	1	2	1	95
1912-13.	23	32	2	5	.....	62	13	2	1	.....	.....	17	65	20	1	5	4	95
1913-14.	37	13	2	6	1	59	32	7	2	1	2	44	66	12	1	7	8	94
1914-15.	24	4	5	7	.....	40	27	10	2	2	1	42	93	34	16	6	10	159

## EXPLANATORY NOTES.

Membership and attendance are not kept by departments. We have no graduates. The girls are not allowed to think that they have learned a trade, but understand that they will be placed at a dollar a day or more when they are able to earn it. They are encouraged to return in dull seasons and evenings for further training. Self-placed girls seldom warrant placement by the school because of brief attendance, and are often helped by friends into positions at a lower wage than girls placed by the school.

Girls not accounted for in above tables were present in June and carried over to the next year. Withdrawals are voluntary because of illness or trouble at home, or for cause—physical, mental or moral defects.

Average wage of girls placed at:

	Machine Operating.	Hand Sewing.
First year.	\$6 06	\$6 36
Second year.	6 75	7 29
Third year.	7 61	8 35

*Conclusion and Recommendation.*

The records of the school are completely and carefully kept. The committee has been able to secure full information from this school promptly and in detail.

The school meets the demands fairly well for training in the trades which the school is emphasizing.

The cash return indicates that the product turned out meets commercial standards.

The table of statistics indicates that the school is successful in placing the girls in the trades.

Complete figures on the number of employees in hand needlework and in power-operating in Boston were not obtained, but there are indications that the number of hand needleworkers is diminishing and that the number of power operators is increasing.

It is the opinion of the committee that definite plans should be made for a continued study of the possibilities for training in other lines of women's work, such as power machine operating, and for the establishment of branches of the school as needs are determined in parts of the city that are centers for the various industries employing women.

*BOSTON INDUSTRIAL SCHOOL FOR BOYS.*

The Industrial School for Boys was opened in May, 1911, in the Brimmer building on Common street. The school is state-aided.

*Aim.*

The aim of the course in the Industrial School for Boys is to offer training for boys, 14 to 25 years of age, for profitable employment in machine shop practice, cabinet making, carpentry, printing, electrical work and sheet metal work. In addition to the age requirement for admission, boys must be able to pass the working certificate test, and should establish the presumption that they can take the course profitably.

*Organization.*

Training in shop work is based on the turning out of commercial products. Half of the time is devoted to shop practice and half of the time to studies related to the trade and to subjects of a general improvement

nature, such as citizenship, English, etc. The day session is six and a half hours, with 32½ hours per week. The term is 40 weeks and the course is two years.

The staff is organized as follows: Master, division heads — electrical department, 1; machine department, 1; printing department, 1; sheet metal department, 1; woodworking department, 1; instructors — academic and technical branches, 3; shop instructors — machine department, 1; woodworking department, 1; electrical department, 1; assistant shop instructors — electrical department, 1; bookkeeper, 1; clerical assistant, 1.

Each trade department is treated as a separate school. All of the shop training, drawing, related work and general education work are given by instructors devoting their full time to one department. As far as possible, the instructors of related subjects are drawn from the specific trades. The establishment of the school is authorized under the statutes of chapter 471, Acts of 1911. The state and city cooperate in the support and maintenance of the school. The City of Boston owns the entire plant and equipment. The state reimburses the city for one half of the maintenance expenditures, subject to the requirements as to conditions of work and efficiency set up by the State Board of Education. Some of the standards established by the state are:

1. That not more than sixteen boys be allowed to one teacher.
2. That there shall be efficient and up-to-date equipment for the trade to be taught.
3. That shop teachers shall have had at least eight years' actual trade practice.
4. That the teachers of drawing and related work shall have had trade experience.

The state does not direct the operation of the school but simply sets up standards that must be met in order to secure state reimbursement. The trade practice given the students must necessarily be based on the turning out of product meeting commercial standards. This product must be turned out by the production methods practised in the trade.

#### *Plant.*

The school is located in the old Brimmer building. Considerable remodeling and repairing of the building were necessary to adapt it to the purpose of trade train-

ing. The building is limited in capacity to about 160 boys and is not well adapted to the purpose for which it is used. A new building which is in the process of erection will be occupied by the school next fall. The principal of the school reports that there is a waiting list of 400. The new building will have an estimated capacity of 600 boys. About \$200,000 is being expended in the construction and equipping of this building.

*Characteristics of the Work.*

There are two bases for forming judgment of the character of the work. First, as to the product that is turned out. Second, as to the placing of boys in the trade for which they were trained. The following statement shows the value of product.

**AVERAGE PRODUCT PER BOY BY DEPARTMENTS FOR THE YEAR 1914-15.**

(Total Product of Department Divided by Average Membership.)

DEPARTMENTS.	Total Product.	Average Membership.	Average Product per Boy.
Cabinetmaking, carpentry and patternmaking.	\$2,102 54	38	\$55 33
Printing.....	1,139 49	33	34 53
Machine shop.....	358 50	30	11 95
Electrical.....	3,135 00	55	57 00
Sheet metal.....	453 39	21	21 59



TABLE OF AVERAGE PRODUCT PER BOY FOR THE YEAR 1914-15.  
In the State-Aided Trade Training Schools of Massachusetts.

TRADE TRAINING SCHOOL	Boston.	Holyoke.	Lowell.	New Bedford.	Newton.	Northampton.	Somerville.	Springfield.	Westfield.	Worcester.
Cabinetmaking.....	\$55 33	.....	\$51 03	.....	\$55 32	.....	\$42 50	.....	.....	\$54 20
Carpentry.....	.....	\$56 88	.....	\$61 37	.....	\$66 50	81 89	\$53 75	.....	64 70
Patternmaking.....	.....	41 22	.....	.....	31 34	.....	.....	.....	.....	13 10
Machine.....	11 95	20 07	39 21	136 31	12 15	.....	29 64	54 95	\$20 05	33 30
Printing.....	34 53	17 61	.....	.....	30 13	.....	.....	208 28	.....	65 70
Sheet metal.....	21 59	.....	.....	.....	.....	.....	.....	.....	.....	12 50
Automobile repairing.....	.....	.....	8 27	.....	.....	.....	.....	.....	.....	.....
Grafting.....	.....	.....	.....	44 25	.....	.....	.....	.....	.....	12 50
Steam engine practice.....	.....	.....	50 45	30 52	18 71	.....	.....	.....	.....	29 80
Electrical.....	57 00	.....	.....	.....	.....	.....	.....	.....	.....	50 00

These figures are not all based on a similar method of determining the value of the product. Comparisons cannot be made accurately from this table.

The work in the shops is conducted in a business-like manner. The boys attend to their work seriously, the processes are typical of those of the commercial shops, and the product has considerable value. The other basis for judging the work of the school, namely, that of placing the boys in the trades for which they are trained, is, perhaps, more vital than that of product. The table of statistics furnished by the master of the school indicates the development for the past four years in enrollment and number placed in the trade.

## BOYS' INDUSTRIAL SCHOOL.

	March, 1912, to June, 1912.	September, 1912, to June, 1913.	September, 1913, to June, 1914.	September, 1914, to June, 1915.
<b>Total enrollment:</b>				
Electrical work.....	33	49	65	69
Machine work.....	24	40	34	44
Printing.....	21	25	27	41
Woodwork.....			23	21
Sheet metal work.....	20	43	40	47
Total.....	98	157	189	222
<b>Average membership:</b>				
Electrical work.....	30	36	58	56
Machine work.....	19	27	30	33
Printing.....	15	22	23	32
Woodwork.....			11	14
Sheet metal work.....	16	30	35	37
Total.....	80	115	157	172
<b>Average attendance:</b>				
Electrical work.....	28	33	54	53
Machine work.....	18	26	26	30
Printing.....	14	20	20	27
Woodwork.....			16	13
Sheet metal work.....	15	28	32	34
Total.....	75	107	148	157
<b>Graduates:</b>				
Electrical work.....			13	16
Machine work.....			3	8
Printing.....			3	8
Woodwork.....		1	7	9
Sheet metal work.....				1
Total.....		1	26	42

Boys' Industrial School.—*Concluded.*

	March, 1912, to June, 1912.	September, 1912, to June, 1913.	September, 1913, to June, 1914.	September, 1914, to June, 1915.
<b>Returned to regular school:</b>				
Electrical work.....				1
Machine work.....	2		1	
Printing.....	2			
Woodwork.....				1
Sheet metal work.....			1	
	—		—	—
Total.....	4		2	2
<b>Left school — unknown:</b>				
Electrical work.....	2	14	20	16
Machine work.....	2	5	9	13
Printing.....	3	3	5	10
Woodwork.....	3	10	10	12
Sheet metal work.....			14	7
	—	—	—	—
Total.....	10	32	58	58
<b>Number placed in other occupation than that trained for:</b>				
Electrical work.....	2	11	14	5
Machine work.....	4	15	12	9
Printing.....	2	8	6	4
Woodwork.....	2	9	14	3
Sheet metal work.....				5
	—	—	—	—
Total.....	10	43	46	26
<b>Number placed in trade trained for:</b>				
Electrical work.....			8	18
Machine work.....		2	6	11
Printing.....			7	7
Woodwork.....		2	4	11
Sheet metal work.....				1
		—	—	—
Total.....		4	25	48

## COSTS AND STATISTICS.

The Accompanying Table Prepared by the Business Agent Shows the Cost of the School for a Period Covering Approximately Four Years.

	Dec. 1, 1914, to Aug. 31, 1915. a	Dec. 1, 1913, to Nov. 30, 1914.	May 1, 1911, to Nov. 30, 1913.
Administration:			
Supervision and general charges outside school staff.	\$1,506 18	\$1,563 81	\$1,828 14
Office expenditures *.....	1,456 61	1,113 67	1,326 58
Instruction:			
Directors.....	2,943 00	3,546 00	6,275 00
Teachers.....	15,741 83	17,837 35	25,614 24
Materials.....	3,122 73	3,846 92	5,816 14
Auxiliary agencies.....		4 72	
Plant operation.....	3,266 12	3,318 39	5,619 17
Repairs and replacements †.....	388 18	554 96	1,979 86
New buildings and grounds.....	63,459 47	16,115 95	
Old building alterations.....			91,300 00
Equipment, new, with cartage, etc., on same.	900 80	2,822 39	6,968 99
All other items not classified.....			
Total ‡.....	<u>\$92,784 92</u>	<u>\$50,724 16</u>	<u>\$146,728 12</u>
Income:			
Tuition claims §.....	\$1,254 50	\$2,149 50	\$2,603 60
Cash received from work and products.	728 32	1,220 42	325 79
Total income.....	<u>\$1,982 82</u>	<u>\$3,369 92</u>	<u>\$2,929 39</u>
Net total §.....	<u>\$90,802 10</u>	<u>\$47,354 24</u>	<u>\$143,798 73</u>

\* Including clerical services.

† To buildings and equipment.

‡ Exclusive of interest and sinking fund charges.

§ Paid or unpaid.

|| The \$91,300 represents the value of the Brimmer building.

Owing to the change of the date of the financial year to September 1, 1915, instead of December 1, 1915, the column dated December 1, 1914, to August 31, 1915, covers a period of nine months. This makes the figures for expenditures for this period misleading as to the actual cost for either one year or nine months owing to the fact that expenditures for certain materials and supplies are made for the entire year. The figures for the year December 1, 1913, to November 30, 1914, have been used in compiling a brief study of the per capita costs in the school.

## BOSTON INDUSTRIAL SCHOOL FOR BOYS.

Expenditures, December 1, 1913, to November 30, 1914.

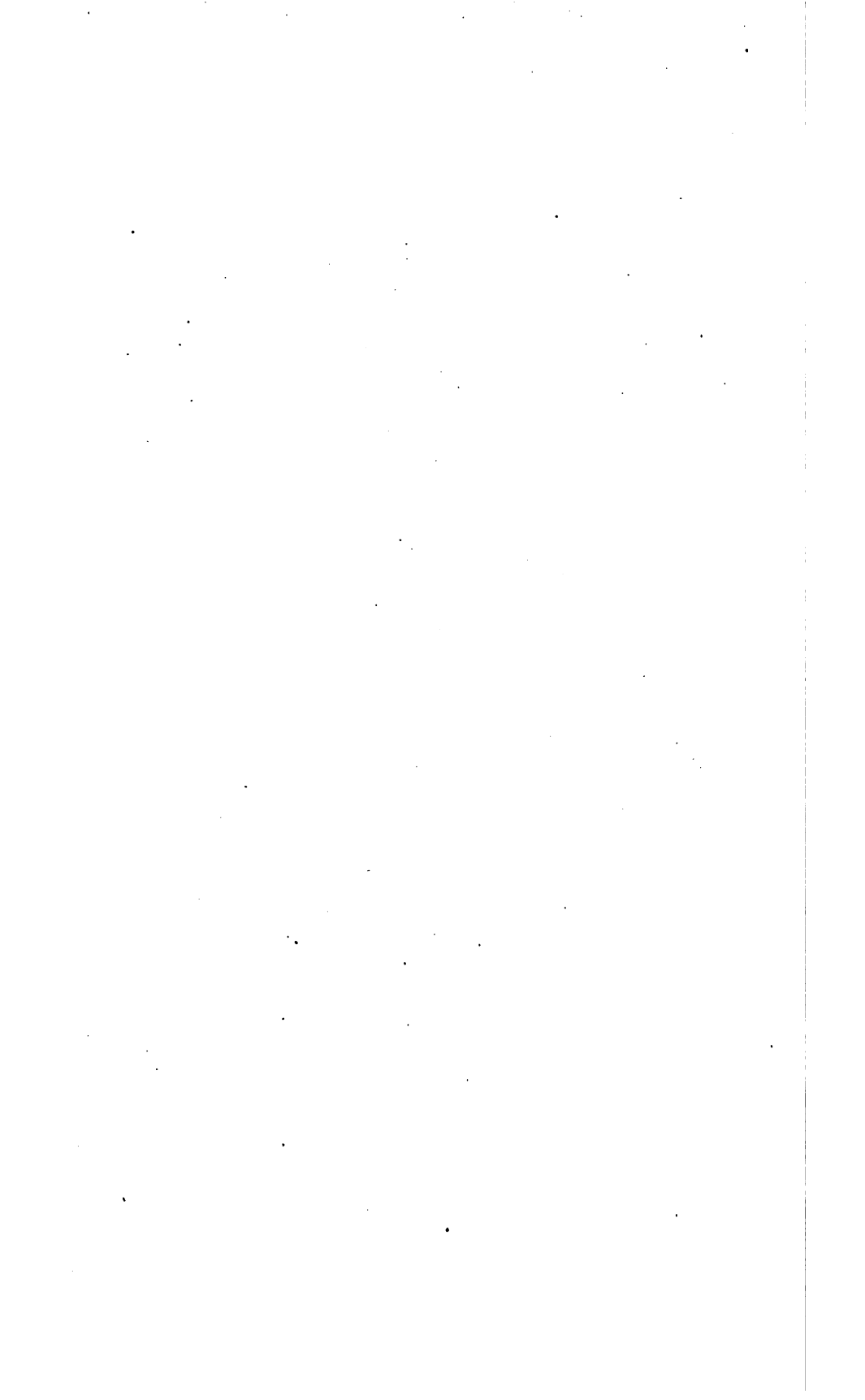
		Per Capita on Basis of 184 Enrolled.	Per Capita on Basis of 148 Average Attendance.
Overhead charges, supervision and general charges outside of staff.....	\$1,563 81		
Office expenditures.....	1,113 67		
Director's salary.....	3,546 00		
Total overhead charge.....	\$6,223 48	\$37 94	\$42 05
Instruction, teachers' salaries.....	17,837 35	108 76	120 52
Instruction supplies.....	3,846 92	23 46	25 99
Plant operation.....	\$3,318 39		
Upkeep.....	554 96		
Auxiliaries.....	4 72		
	3,878 07	23 64	26 20
	\$31,785 82	\$193 80	\$214 76
The above figures are for maintenance charges only and do not take any credit for product into account. The report for this school on value of product turned out this same year is given at.....			
	\$5,815 50	\$35 03	\$39 22
If the school were credited for all of its product, the net per capita cost would be.....		158 77	175 54

It is noticeable that the overhead charges are equal to the average per capita cost for total maintenance in the elementary schools. This overhead maintenance charge is considerably out of proportion to the other charges owing to the limited capacity of the school. With the increased enrollment in the new building it should be possible to reduce this cost.

The instruction charge is not excessive for efficient trade training. An instructor cannot keep more than sixteen boys advantageously employed in a shop at one time.

The pupil hour cost estimated on the basis of average attendance is \$0.16½. If the allowance for product is made, the net pupil hour cost on the basis of average attendance is \$0.13½. The City of Boston received as reimbursement from the state treasury \$14,207.95 as one half of the net maintenance charges.





*Conclusions and Recommendations.*

The school must necessarily be judged by the character of the training it gives and by the number of boys it places in the trades they are trained for. The report of the number of boys placed in the trades trained for indicates considerable improvement in the year 1914-15 as compared to previous years. Twenty-eight per cent of the average enrollment for the entire school went into the trade trained for in 1914-15 and 15 per cent went into other trades than those trained for. If the percentage were based on the number in the second year class it would probably show that over 50 per cent entered the trades trained for. This indicates that the basis of selection of pupils has been more closely adjusted to the aims of the school than was the case in former years.

In order that a school may know whether its pupils are properly trained for their trade records of the experiences of those who have entered employment should be kept for a number of years. At present little is known about boys who have gone out into the trades. A vocational assistant has been recently engaged to follow up the boys who have entered the trades.

The methods of instruction and the character of the product turned out meet the aim of the school. So far as school conditions make it possible the shops are of a commercial type. As pointed out above, the cost of the school is very high. It must be recognized that the school has been in existence only four years, is in the promotion stage and is preparing to go into a large building involving additional expenditures.

The school should reduce its per capita cost. When the school is larger a less overhead per capita cost will be incurred for supervision and general administration. Probably the most effective means of reducing the cost of operating the Industrial School is by the increased efficiency of production in the shops. The school should reduce its operating costs by producing a large quantity of product that is needed by the various school departments under a system of crediting the school with the actual value of the product. Of all the possibilities for reducing the per capita cost of the school this calls for the most consideration. Work for the various departments affords valuable trade experience. All of the available educational oppor-



tunities in doing work on school plants or equipment should be utilized. Some organization should be established whereby selections from the requisitions made on the Schoolhouse Commissioner and on the Business Agent could be made by a member of the directing staff and who would distribute them to the various industrial types of schools as pre-vocational, part time continuation and trade training. A system of accounting should also be adopted whereby each department would receive proper credit for its product and this credit be considered in computing costs. The requirements set up for efficient trade teaching limit the number of boys to a teacher, hence the teaching costs cannot be materially reduced.

The pre-vocational schools are established with one of their aims to give a try-out experience in a number of occupations to enable boys to make an intelligent choice of trades. Very few pre-vocational students, however, enter the Industrial School. As a matter of educational and economic efficiency it is desirable that the operation of these two types of schools be adjusted to insure a larger number of pre-vocational boys entering the Industrial School.

The Mechanic Arts High School and the part time coöperative course offer trade training on different plans. In the next few years experience with these three types of trade training will probably indicate which plan is the most effective.

The committee believes the Industrial School is giving efficient trade training and recommends that the plan for expansion of the work be carried out.

#### PART TIME COÖPERATIVE COURSE IN THE HYDE PARK HIGH SCHOOL.

The part time coöperative course in the Hyde Park High School was organized in 1913. A number of metal working industrial plants in Hyde Park coöperate with the high school in giving training.

#### *Aim.*

The aim of the course is to conduct a high school course for boys in which they may receive the essentials of a high school education and at the same time get actual experience in an industrial shop so as to acquire trade knowledge and skill in some one specific trade.

*Organization.*

During the first year all of the time is spent at the high school. In the last three years of the course half time is devoted to work in Hyde Park shops with the pay of an apprentice. In conducting this course the school has the coöperation of the manufacturing industries of the Hyde Park district. The boys begin work on pay in these shops at the beginning of the summer vacation following their first year in the high school.

In the various Hyde Park industrial plants there is opportunity to choose from the following trades for a part time course:

Blacksmith.  
Machinist.

Molding.  
Sheet Metal Work.

The course of study as at present being carried out gives a fair idea of the work being done.

**FIRST YEAR.**

SUBJECT.	Periods.	Points.
English.....	5	5
Industrial mathematics.....	4	4
Elementary science.....	4	3
Bench work, including drafting.....	10	7
Military drill.....	2	2
Chorus singing.....	1	1
Hygiene.....	1	1
	27	22

As part of the regular work of the first year, frequent excursions are made to the various manufacturing establishments in Hyde Park. These visits will help the pupil to decide upon the trade to be learned.

## SECOND YEAR.

SUBJECT.	Periods.	Points.
English.....	5	2½
Industrial mathematics.....	5	2½
Industrial geography.....	3	1½
Physics.....	4	2
Drafting (two prepared periods and three unprepared),	5	1½
Bench work (with prepared work).....	2	1
Military drill.....	2	1
Chorus singing or orchestra.....	1	½
During every other week the pupil works at his chosen trade in some Hyde Park industrial estab- lishment, receiving the pay of an apprentice.		
Diploma points for this work.....		10
Total points.....		22½

## THIRD YEAR.

School Attendance Alternates Each Week with the Work in the  
Hyde Park Manufacturing Establishments.

SUBJECT.	Periods.	Points.
English.....	5	2½
Industrial mathematics.....	5	2½
Industrial history.....	3	1½
Chemistry.....	4	2
Drafting (two prepared and three unprepared periods),	5	1½
Bench work (with prepared work).....	2	1
Military drill.....	2	1
Chorus singing or orchestra.....	1	½
Diploma points for work in the Hyde Park shops on alternate weeks.....		10
Total points.....		22½

## FOURTH YEAR.

School Attendance Alternates Weekly with the Work in the Shop.

SUBJECT.	Periods.	Points.
English.....	5	2½
Industrial mathematics.....	5	2½
Civil government.....	3	1½
Applied science.....	4	2
Drafting (two prepared periods and three unprepared),	5	1½
Bench work (with prepared work).....	2	1
Military drill.....	2	1
Chorus singing or orchestra.....	1	½
Diploma points for work in the Hyde Park shops on alternate weeks.....		10
Total points.....		22½

1. A boy is not allowed to enter upon the last three years of the coöperative industrial course unless he has firmly decided to learn a definite trade and has the consent of his parents.

2. A boy must work at his trade 7,560 hours before completing his term of apprenticeship. This is divided into three periods of 2,520 hours each.

3. During the first period the pay is 8 cents per hour. During the second period the pay is 10 cents per hour. During the last period the pay is 12 cents per hour. This arrangement of periods and pay has been agreed to by all of the shops in which the boys work.

4. Boys are to work at their trades during vacations. A vacation of two weeks in the summer may be taken if desired, but the number of hours thus lost must be made up before the term of apprenticeship is regarded as completed.

5. Boys are to observe the regular hours established by the shops in which they work, and are not to be absent without permission.

6. The School Committee of the City of Boston awards a diploma of graduation at the end of four years, provided there has been yearly promotion in the school studies.

7. After graduation from high school the entire time can be given to completing the number of hours of apprenticeship remaining in the required total of 7,560 hours.

The Associate Director of Manual Arts directs the work. Two instructors are employed in connection with the mechanical instruction of the school. One of the instructors, known as the "coördinator," assists part time in the school and part time in the industrial shops arranging for placement and inspecting and reporting on the work of the students. The first year of the course is given entirely in the school plant. The shop instruction for this year is entirely in woodwork. The school has a limited metal working equipment which is not used at present owing to lack of room. An extension is planned for this building in which will be installed a series of shops representing the metal working industries which are prominent in the Hyde Park section.

The enrollment by years is:

First year class, all school time . . . .	60 boys
Second year class, part time . . . .	22 boys
Third year class, part time . . . .	6 boys
Fourth year class, part time . . . .	4 boys

At present the academic work of the part time classes is taught by the regular high school staff. Part of the time of the shop instructor is devoted to teaching manual training to regular high school students. As the part time department increases in size it will be necessary to organize the teaching staff of the regular high school and of the part time department as two distinct units. The aims and practices of each are unlike, and if they are not clearly defined in organization as well as in practice there is danger that one will react on the other with disadvantages to both.

A committee composed of employers and employees in the locality assists the school staff in an advisory capacity. At present the industrial shop experience is unorganized, but the coördinating instructor is working on a plan for systematizing the experience of the boys in the various plants. This work is not state aided.

#### *Costs and Statistics.*

The figures presented by the Business Agent are as follows:

#### COÖPERATIVE COURSE — HYDE PARK HIGH SCHOOL.

##### Financial Year 1914-15.

Salary of principal . . . . .	\$239 04
Salaries of clerks . . . . .	53 71
Salaries of teachers . . . . .	1,557 62
Salaries, physical education teachers . . . . .	137 27
Manual training supplies and equipment . . . . .	94 26
Drawing supplies and equipment . . . . .	24 67
All other supplies and incidentals . . . . .	249 70
Supervision . . . . .	192 18
Salaries of janitors . . . . .	150 05
Fuel . . . . .	111 43
Light . . . . .	12 99
Power . . . . .	2 33
Janitors' supplies . . . . .	13 89
	<hr/>
	* \$2,839 14

Average attendance † . . . . .	40
Cost per pupil . . . . .	\$70.98

N. B.— All of the above figures are pro-rated.

These figures are based on the assumption that both boys of an alternating pair (*i. e.*, one in the shop and one in the school) are receiving instruction.

\* Exclusive of lands and buildings, furniture and furnishings, repairs, depreciation, interest and sinking fund charges.

† Average membership is practically the same as average attendance.

*Conclusions and Recommendations.*

The part-time plan in the Hyde Park School is an experiment and is still in a developmental stage. The work in the school is seriously handicapped by the limitations of shop facilities and by the employment of the same school staff for the regular high school courses and the coöperative courses.

The progress made under these handicaps is such as to warrant the providing of more extended equipment for the metal working trades and a separate teaching staff as the enrollment increases.

The willingness of the industrial plants to coöperate with the school indicates that they value the plan. The establishment of 7,560 hours of shop practice as a requirement for apprenticeship was agreed upon by the Advisory Board in conference with the directing staff of the school.

The cost of this type of high school education is not excessive, as the boys are in the school building but half the time after the first year. The cost of the trade instruction proper is borne by the industrial plant. If the shop training is properly organized the part-time trade experience has advantages over the usual trade school experience. If the academic studies are well balanced in relation to the trade work this training will be superior to the usual high school course for an apprentice.

There has been some consideration given to the advisability of organizing this part-time plan as a state aided department. The State Board of Education has proposed certain conditions as to selection of teachers, equipment and organization of work under which state aid can be given. This committee recommends that such steps be taken and believes that in this way the part-time work will be materially strengthened. If these steps are taken the committee believes that this type of work is worthy of trial in other centers where the necessary coöperation can be secured on the part of employers. In the opinion of the committee the part-time plan, if properly organized, will eventually assume larger proportions as a means for industrial education.

## VOCATIONAL GUIDANCE.

*Aim.*

The aim of the vocational guidance workers in Boston is:

Guidance — the presenting of information about occupations.

Placement — the bringing together of suitable workers and employers.

Follow-up work — at the places of employment and the homes as a basis for further guidance.

*Organization.*

The department is under an acting director. Schools having a vocational aim, such as the Trade School for Girls, High School of Commerce and the High School of Practical Arts, have instructors or division heads assigned to guidance, placement, and follow-up work. The Boys' Industrial School will have a vocational assistant appointed in January, 1916. The Continuation School has a special organization for this work. Each instructor is required to give two hours daily to follow-up work. A division head directs this function of the school. In the elementary schools certain teachers do this work voluntarily in addition to their regular duties.

The acting director assists the vocational guidance workers by holding conferences and by furnishing information relating to guidance. The placement of high school students is cared for in the office of the acting director.

A Placement Bureau located in the same office with the Vocational Guidance Department looks after the placement of elementary school children. Funds for the support of this bureau are raised by private subscription.

No comprehensive plan for securing information about vocations has been developed.

A summary of the vocations in Minneapolis has just been completed. Many of the facts given in the report of this survey may be of value to workers who are seeking similar information about vocations in Boston.

## VOCATIONAL GUIDANCE STATISTICS.

Girls, May 1, 1915, to October 31, 1915, Inclusive.

	Total.
1. Number reporting to vocational assistant:	
By mail . . . . .	95
In person at:	
Office . . . . .	539
Schools . . . . .	567
Evening centers . . . . .	0
Public libraries . . . . .	0
	—
2. Number parents visiting vocational assistant . . . . .	1,201
3. Number visits by vocational assistant to:	33
Schools . . . . .	52
Parents . . . . .	5
Employers . . . . .	23
Miscellaneous . . . . .	2
	—
4. Number employers visiting office . . . . .	82
5. Placements:	11

	Part-time.	Temporary.	Permanent.	Total.
Brighton High.....			4	4
Charlestown High.....		3	6	9
Dorchester High.....	3	2	5	10
East Boston High.....	1	1	4	6
Girls' High.....	3	25	18	46
Hyde Park High.....				
Roxbury High.....	4	5	14	23
South Boston High.....	1	3	4	8
West Roxbury High.....			1	1
Boston Clerical.....		4	1	5
Girls' Latin.....			1	1
High School of Practical Arts.....		1		1
Normal.....	2			2
Evening High Schools.....		2	4	6
Totals.....	14	46	62	122



## Boys, May 1, 1915, to October 31, 1915, Inclusive.

	Total.
1. Number reporting to vocational assistant:	
By mail . . . . .	49
In person at:	
Office . . . . .	888
Schools . . . . .	257
Evening centers . . . . .	0
Public libraries . . . . .	0
	1,194
2. Number parents visiting vocational assistant . . . . .	18
3. Number visits by vocational assistant to:	
Schools . . . . .	49
Parents . . . . .	41
Employers . . . . .	12
Miscellaneous . . . . .	11
	113
4. Number employers visiting office . . . . .	5
5. Placements:	

	Part-time.	Temporary.	Permanent.	Total.
Boston Industrial.....		3	18	21
Brighton High.....		1	4	5
Charlestown High.....			6	6
Dorchester High.....		20	15	35
East Boston High.....		10	19	29
English High.....	2	13	25	40
Hyde Park High.....		2	8	10
High School of Commerce.		3	25	28
Mechanic Arts High....		1	11	12
Public Latin.....			2	2
South Boston High.....		18	10	28
West Roxbury High....			3	3
Evening High Schools..			5	5
Totals.....	2	71	151	224

Vocational guidance in Boston is not expensive, a large part of the work being done voluntarily, or in connection with other duties.

*Conclusions and Recommendations.*

The work in vocational guidance is probably as well organized and administered in Boston as in any of our American cities. The work is undoubtedly of much value and deserves further study.

While the committee believes in the value of vocational guidance it regards the methods for obtaining information about vocations as capable of more complete organization.

The committee believes that Boston will do well to expand its work in this field and to conduct an investigation of vocations in an accurate and comprehensive manner.

## AMOUNT OF STATE AID RECEIVED BY BOSTON.

PERIOD.	Trade School for Girls.	Boston Industrial School for Boys.	Evening Trade School.	Household Arts Class Continu- ation School.	Evening Practical Arts Courses.	Compulsory Continu- ation School.
Oct. 1, 1908, to July 1, 1909....			* \$3,197 00			
July 1, 1909, to Dec. 1, 1910....	\$9,651 21		8,182 76			
Dec. 1, 1910, to Nov. 30, 1911....	11,895 95		6,078 96			
Dec. 1, 1911, to Nov. 30, 1912....	15,170 89		6,760 38			
Jan. 22, 1912, to Nov. 30, 1912, ..				\$1,270 88		
Dec. 1, 1912, to Nov. 30, 1913....	17,952 96		7,700 25	1,142 92	\$5,794 60	
May 1, 1911, to Nov. 30, 1913....		\$22,764 87				
Dec. 1, 1913, to Nov. 30, 1914....	20,531 14	14,207 95	6,435 78	1,043 75	5,907 68	\$5,808 68
Dec. 1, 1914, to Aug. 31, 1915†..	16,153 89	13,220 92	3,849 90	801 79	5,014 17	17,281 72
Totals.....	\$91,356 04	\$50,193 74	\$42,205 03	\$4,259 34	\$16,716 45	\$23,090 20

\* One fifth the net cost of maintenance; all other figures are one half the net cost of maintenance.

† Reimbursement for this period will be received in 1916.

## CHAPTER VI.—VOCATIONAL NEEDS OF BOSTON CHILDREN.

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According to the United States Census Reports for 1910, there were in Boston at that time 1,470 male apprentices in all the manufacturing and mechanical industries and 74,599 others, excluding unskilled labor, that is, one apprentice to 57 skilled and semiskilled operatives. There were 236 female apprentices, chiefly dressmaking and millinery, as compared with 22,555 other skilled and semiskilled employees in the manufacturing and mechanical industries, or about one apprentice to 96 operatives. In the other occupational groups there is no record given to show that intentional, definite preparation of boys and girls is being made within the occupation itself to replace the natural loss from the present working force.

The figures taken from the United States Census for use in this chapter are to be accepted not as absolutely accurate in every detail, but as the best obtainable and as sufficiently accurate for large groupings to admit of their use as a proper basis for scientific study. The Director of the Census himself recognizes the probability of many errors in the details of the large groups; but he also demonstrates that, for the group as a whole, the error is not considerable. This caution should be borne in mind in interpreting these data.

Schools, colleges, universities and technical schools have for years past provided the education and training necessary for professional vocations. Formerly the apprentice system in manufacturing and mechanical industries and similar probationary periods of training and experience in trade, commercial and service activities, furnished the younger generation the knowledge and training required to accomplish successfully the work they would be required to do throughout their adult life; and this, at the same time, provided the supply necessary to recruit the ranks in these occupations. With the almost total disappearance of the apprentice and similar systems for industrial and commercial training, this supply has practically disappeared

and occupational preparation of our youth becomes a matter of serious import. Since the schools have gradually accepted more and more largely the responsibility for the education of all the children, it is therefore the problem of the schools to provide the training which will enable these pupils to prepare for such vocational activities as are open to them.

In order to determine the extent to which vocational training should be given in our schools and to avoid loss or waste of time, energy and money, it is necessary to know definitely the conditions to be provided for. In this particular study, therefore, it is necessary to ascertain what vocations are open to the boys and girls of Boston, and to what extent provision should be made to furnish the supply needed in these vocations, as shown by the quantitative demand. For the occupations of adult life of the present day will, in all probability, continue to be the chief occupations of adult life of the next generation. Some slight advance and some few changes will probably occur, or there will be no progress; but for all practical purposes the present occupations are those to be considered. Therefore, the vocational preparation of the boy and the girl of today must lead to the vocational occupation of the man and the woman of ten, twenty, thirty and more years hence.

If it were reasonable to expect that the children in Boston would continue to reside in Boston all their lives, it would be right to train them for those occupations only which are found in Boston. But in a study of 78 cities\*, among which are 15 New England cities, it was shown that only 16 per cent of the 22,027 fathers then lived in the city where they were born. Since the pupil is primarily the concern of the school, it must fit him to live his life wherever he may be. It must be remembered, however, that the trend of migration is not from city to country; the reverse is true. If it can be shown, therefore, that the schools of Boston, in meeting the demands of the occupations found in the home city, make, at the same time, reasonable provision for occupational life in other cities, particularly those lying within the same section of the country, they will be giving to the pupil every advantage that can be rightfully expected. The first point in our problem,

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\* Pamphlet Publications of the Division of Education, Russell Sage Foundation, No. e 135. *Some Conditions Affecting Problems of Industrial Education in Seventy-eight American School Systems*, Leonard P. Ayres, Ph. D.

then, is to get a broad comparison between the occupations in Boston and those elsewhere. For this purpose Tables I and II have been compiled from the United States Census Reports of 1910.

TABLE I.

**Total Number of Males 10 Years of Age and Over Engaged in Gainful Occupations in Boston, and the Number Per 1,000 so Engaged in Boston, in Massachusetts, in the New England States, in all New England Cities, in all Cities.**

OCCUPATIONAL GROUPS.	BOSTON.		MASSACHUSETTS.	NEW ENGLAND STATES.	NEW ENGLAND CITIES.	ALL CITIES.
	Total Number.	Number Per 1,000.	Number Per 1,000.	Number Per 1,000.	Number Per 1,000.	Number Per 1,000.
Agriculture, forestry and animal husbandry.	2,027	9	66	137	13	10
Extraction of minerals.....	183	1	2	4	1	2
Manufacturing and mechanical industries.	86,020	391	527	504	544	472
Transportation.....	31,301	142	92	84	98	115
Trade.....	43,213	196	144	124	158	175
Public service.....	7,009	32	24	22	25	25
Professional service.....	11,192	50	38	34	39	43
Domestic and personal service...	20,150	92	51	45	58	72
Clerical occupations.....	19,067	87	56	46	64	86
Total in all occupations.....	220,222	1,000	1,000	1,000	1,000	1,000

Total male population 10 years of age and over, 268,870.

The above table shows that, of the 268,870 males ten years of age and over in the City of Boston, 220,222 were engaged in gainful occupations. We shall have occasion later to refer to those not so occupied. A comparison of the columns showing the number of males per thousand employed in each occupational group in Boston is practically equal to or greater than the number similarly engaged in all New England cities and in all the cities of the country, excepting for manufacturing and mechanical industries. In this occupational group Boston falls below the New England cities by 153 and below the average for all cities in the country by 81. The occupational requirements of Boston would meet the occupational demands of either Massachusetts or the

New England States in all the occupational groups except manufacturing and mechanical industries, extraction of minerals and agriculture and animal husbandry pursuits.

TABLE II.

Total Number of Females 10 Years of Age and Over Engaged in Gainful Occupations in Boston, and the Number Per 1,000 so Engaged in Boston, in Massachusetts, in the New England States, in all New England Cities, in all Cities.

OCCUPATION GROUPS.	BOSTON.		MASSACHUSETTS.	NEW ENGLAND STATES.	NEW ENGLAND CITIES.	ALL CITIES.
	Total Number.	Number Per 1,000.	Number Per 1,000.	Number Per 1,000.	Number Per 1,000.	Number Per 1,000.
Agriculture, forestry and animal husbandry.	133	1	6	14	1	1
Extraction of minerals.....	2	.....	.....	.....	.....	.....
Manufacturing and mechanical industries.	27,260	283	456	453	471	356
Transportation.....	1,859	19	11	11	12	17
Trade.....	10,066	105	62	57	73	94
Public Service.....	87	1	1	1	1	1
Professional service.....	8,742	91	84	90	77	84
Domestic and personal service...	33,746	350	272	279	252	312
Clerical occupations.....	14,431	150	108	95	113	135
Total in all occupations.....	96,326	1,000	1,000	1,000	1,000	1,000

Total female population 10 years of age and over, 281,211.

Table II above, compiled in the same way as Table I, presents the number of females ten years of age and over engaged in gainful occupations. Quite a different condition is first noticed in the number of females so employed as compared with the total female population ten years of age and over. Only 96,326 are employed out of a total of 281,211. Practically two-thirds of the women in Boston are not occupied as wage earners. This matter must be considered when we come to attempt the distribution of vocational training among the girls at school. Comparison between the number per thousand occupied in Boston with those similarly occupied in the cities and states specified shows results quite similar to those obtained for the boys. Having thus ascertained that by taking care of its own needs Boston will provide for the younger generation every reasonable

advantage for occupational life, the figures for Boston only will be considered throughout the rest of this chapter.

To present a more definite view of occupational needs in Boston, the United States Census Reports for 1910 have again been used to compile a table which shall show the number of males engaged in each specified occupation. The age limit, ten years and over, is that used by the Census Bureau and is therefore retained throughout this study. It appeared that a better result for school purposes would be obtained by disregarding the group and alphabetic arrangement used in the tables in the census reports, so as to bring together those trades for which the schools would necessarily give similar vocational training and, in some cases, by combining in one item the numbers for two or more similar occupations. For instance, all specified unskilled laborers, whether in agricultural, manufacturing or other groups, have been combined into one item; all woodworking occupations have been combined or placed in juxtaposition; a similar arrangement of those working in metals and machinery was made, and so on. Table III, given below, was constructed in accordance with the plan just outlined. It therefore lends itself as a tentative guide in determining the branches of vocational training that should be undertaken by the schools; also a guide to the number of individuals (within broadened limits) that should receive this training; and, in connection with certain other factors, it would aid in making a proper distribution of expenditures justified thereby.

TABLE III.

Total Number of Males 10 Years of Age and Over Engaged in Each Specified Gainful Occupation in Boston, and the Number Per 1,000 so Engaged.

Item.	OCCUPATIONS.	Number Engaged.	Number Per 1,000.
1	Farm, garden, flower and tree pursuits.....	254	1
2	Apprentices (manufacturing and mechanical industries)....	1,470	6
3	Manufacturers and officials.....	3,732	17
4	Builders and building contractors.....	1,974	9
5	Foremen and overseers (manufacturing and mechanical industries).....	1,237	6
6	Carpenters.....	6,684	30
7	Cabinetmakers and upholsterers.....	1,010	5
8	Furniture, piano and organ factories.....	1,350	6
9	Other woodworking pursuits.....	1,147	5
10	Brick and stone masons.....	2,094	10
11	Painters.....	4,585	21
12	Other building trades.....	1,610	7
13	Plumbers, gas and steam fitters.....	2,353	11

TABLE III.—*Concluded.*

Item.	OCCUPATIONS.	Number Engaged.	Number Per 1,000.
14	Machinists .....	6,175	28
15	Engineers (mechanical, stationary and locomotive) .....	3,050	14
16	Blacksmiths .....	1,608	7
17	Firemen (stationary and locomotive) .....	2,043	10
18	Metal workers (other than iron and steel) .....	1,917	9
19	Other mechanics and operatives in iron and steel .....	4,780	21
20	Electricians and electrical engineers .....	2,099	10
21	Chauffeurs .....	1,285	6
22	Motormen .....	1,320	6
23	Bakers and bakers .....	1,398	6
24	Other food and allied pursuits .....	1,056	5
25	Tailors .....	4,512	20
26	Clothing factories .....	2,247	10
27	Textile mill operatives .....	674	3
28	Shoe and leather industries .....	5,425	25
29	Engravers, lithographers and electrotypes .....	1,777	8
30	Clay, glass and stone (including quarries and mines) .....	596	3
31	Cigar-making and tobacco factories .....	1,297	6
32	Scattering (manufacturing and mechanical pursuits) .....	3,614	16
		76,069	346
33	Wholesale and retail dealers .....	11,855	54
34	Railroad and express proprietors, officials and agents .....	1,390	6
35	Bankers and brokers .....	1,110	5
36	Real estate and insurance officials and agents .....	2,285	10
37	Foremen and inspectors (trade and transportation) .....	880	4
38	Bookkeepers, cashiers and accountants .....	3,666	17
39	Clerks (except clerks in stores) .....	10,880	49
40	Stenographers and typewriters .....	610	3
41	Telegraph and telephone operators .....	474	3
42	Compositors and linotypers (printing) .....	2,424	11
43	Conductors, street and steam railways .....	1,588	7
44	Post and express carriers and clerks .....	941	4
45	Clerks and salesmen in stores, and commercial travelers .....	19,495	89
46	Agents, canvassers and collectors .....	1,320	6
47	Scattering (trade, transportation and public service) .....	3,329	16
		62,247	284
48	Public officials and inspectors .....	936	4
49	Detectives, policemen, guards and watchmen .....	2,785	13
		3,721	17
50	Hotel, boarding house and restaurant keepers .....	1,405	6
51	Laundry owners and workers .....	1,208	5
52	Servants and waiters .....	7,994	36
53	Janitors, sextons and cleaners .....	2,322	11
54	Barbers .....	2,561	12
55	Bartenders .....	1,028	5
56	Other domestic and personal service pursuits (except laborers) .....	1,759	8
		18,277	83
57	Unskilled laborers .....	48,462	220
58	Actors and showmen .....	489	2
59	Architects .....	300	1
60	Artists, sculptors and teachers of art .....	471	2
61	Authors, editors and reporters .....	539	2
62	Chemists and assayers .....	210	1
63	Civil and mining engineers and surveyors .....	559	3
64	Clergymen .....	647	3
65	Dentists .....	516	2
66	Designers, draughtsmen and inventors .....	784	4
67	Lawyers, judges and justices .....	1,341	6
68	Musicians and teachers of music .....	1,340	6
69	Photographers .....	303	1
70	Physicians and surgeons .....	1,620	7
71	Teachers (school and college) .....	964	4
72	Other professional and semiprofessional pursuits .....	1,109	5
		11,192	49
	Grand total .....	220,222	1,000



Following the plan of construction outlined above, Items 2 to 32 of this table show that 346 out of every thousand males engaged in gainful occupations, skilled and semiskilled, in Boston, or 34.6 per cent, are employed in the manufacturing and mechanical industries; 284 per thousand, or 28.4 per cent, Items 33 to 47, are occupied in trade and commerce; 220 per thousand, or 22 per cent, Item 57, in unskilled labor; 83 per thousand, or 8.3 per cent, Items 50 to 56 in domestic and personal service; 49 per thousand, or 4.9 per cent, Items 58 to 72, in professional pursuits; 17 per thousand, or 1.7 per cent, Items 48 and 49, in public service; and 1 per thousand, or .1 of 1 per cent, Item 1, as florists, gardeners or foresters. It must be remembered that neither the pupil nor the school can know positively the particular occupation for which he is best fitted or which he will pursue in adult life, and that he should have the privilege and opportunity of several kinds of vocational training, thereby necessitating the broadened limits mentioned above. But the above figures definitely signify that a minimum of 34.6 per cent of the boys, upon quitting school, should have been trained for the manufacturing and mechanical industries; a minimum of 30.1 per cent for trade, commerce and general business vocations, for the proper execution of public business is fundamentally similar to that of private business, thereby enabling us to combine two of the items above; 8.3 per cent should have taken the courses leading to domestic and personal service; and 4.9 per cent those tending to professional vocations. We shall refer to these figures throughout this study as the vocational demands of Boston.

When these rates per cent are properly weighted in proportion to the per capita cost in the several branches of vocational training, they become a reasonable guide for the proportionate distribution of the expenditures to be made for vocational education for the boys.

Nine thousand six hundred and thirty-seven pupils left the Boston schools during the scholastic year 1914-15. How many of them were boys and how many girls is not stated in the published statistics, except for the special schools. The numbers leaving each kind of school were received from the superintendent's office. The distribution of these numbers by sexes has been made upon the basis of the average of ratios between the sexes in the total registration, in the aver-

age number belonging, and in the number belonging on June 30, as given in the annual statistics for 1914-15. The numbers thus obtained are presented in Table IV below:

TABLE IV.

Number of Pupils (Male and Female) Who Dropped Out of School (Discharged to Work and for Any Other Reason) During the Scholastic Year 1914-15, and their Approximate Distribution by Sexes.

	Total.	Boys.	Girls.
From elementary schools .....	5,244	2,747	2,497
From secondary schools .....	3,797	1,772	2,025
From normal schools .....	17	3	14
From special schools .....	579	133	446
Total .....	9,637	4,655	4,982

The above table shows that approximately 4,655 of those who left school last year were boys. By applying the rates of vocational demand in Boston to this number, it is indicated that about five of these boys may be expected to engage in floriculture or some other form of agriculture in the city; about 1,611 will be needed in the manufacturing and mechanical industries; about 1,401 in commercial and business pursuits, including public service; about 386 in personal service of some kind; about 1,024 in labor requiring less skill; and about 228 in professional life.

Considering the matter with reference to the definite vocations these boys will follow in adult life, the column in Table III giving the number per thousand for each specified vocation indicates that about 652 will be needed for work in metals and machinery, chiefly iron and steel; 442 as salesmen; 307 bookkeepers, clerks and accountants; 253 as wholesale and retail dealers; 214 carpenters and woodworkers; 168 as servants; 154 tailors and other workers in textiles; 116 as shoe and leather workers; 98 painters; 93 railroad, express, real estate and insurance officials, managers, agents and superintendents; 75 in building trades other than carpenters, painters and brick and stone masons; 60 will become detectives, policemen, guards and watchmen; 56 barbers; 51 bakers and workers in other food products; 51 compositors and linotypers in the printing and publishing

trades; 51 conductors and other post, express or transportation operatives; 47 brick and stone masons; 28 hotel, boarding and lodging house and restaurant keepers; 23 bankers and brokers, and 14 stenographers and typewriters. Of the 228 of these boys needed for professional life, 33 will become physicians and surgeons; 28 lawyers; 28 musicians and music teachers; 19 designers, draughtsmen and inventors; 19 teachers in school and college; 14 clergymen; 14 civil and mining engineers and surveyors; 9 authors, editors and reporters; 9 dentists; 9 chemists; 9 artists and sculptors; 9 actors; 5 architects, and the remainder will be scattered among occupations not specified above.

Statistics are not at hand to show the exact number of these boys who had vocational and pre-vocational courses before leaving school, but by taking the figures in Table IV in connection with certain data contained in the Superintendent's report and in the Annual Statistics for 1914-15 a fair approximation is obtainable.

Vocational, or rather pre-vocational, training in the elementary schools is limited to pupils twelve years of age and over admitted to the pre-vocational classes. During 1914-15, 259 boys were given pre-vocational diplomas. Assuming that all of these 259 boys left school to work, there remains 2,488 of the 2,747 leaving elementary schools (see Table IV) who had no vocational training in school. On page 49 of the Superintendent's report he gives the number of boys taking vocational courses in the secondary schools as follows: Industrial courses, 647, or 8.3 per cent; commercial and business courses, 3,640, or 46.6 per cent; the remaining 3,522, or 45.1 per cent, were taking courses tending to professional vocations. Using these rates per cent to distribute the number of boys leaving secondary schools (1,772), the approximate numbers who had taken these several courses are obtained: industrial, 147; commercial and business, 826; professional, 799. The three males leaving the Normal School necessarily had taken professional training and in the special schools the 133 boys leaving had more or less of industrial training. Tabulating these numbers for convenience we find the approximate number of boys leaving school during 1914-15 who had received some form of vocational training or who had no vocational courses as set forth in Table V.

TABLE V.

	VOCATIONAL COURSES TAKEN.			No Vocational Course.	Totals.
	Industrial.	Commercial and Business.	Professional.		
Normal School.....	.....	.....	3	.....	3
Secondary schools.....	147	826	799	.....	1,772
Elementary schools.....	259	.....	.....	2,488	2,747
Special schools.....	133	.....	.....	.....	133
Total number of boys.....	539	826	802	2,488	4,655

The totals thus obtained show that 539 of the boys who went out from school to everyday life were more or less well prepared for industrial pursuits; 826 for commercial and business life; 802 for professional life, and that 2,488 had no specified vocational training. Comparing these figures with the vocational demands for these boys, as demonstrated in the first paragraph following Table IV, the excess or deficiency of the supply required to fill the ranks of occupational life will appear. Table VI shows this comparison:

TABLE VI.

OCCUPATION GROUPS.	Number Needed.	Number Receiving Preparation.	Excess.	Deficiency.
Agriculture.....	5	.....	.....	5
Manufacturing and mechanical industries.....	1,611	539	.....	1,072
Trade and commerce.....	1,401	826	.....	575
Domestic and personal service..	386	.....	.....	386
Professional service.....	228	802	574	.....
Unskilled labor.....	1,024	2,488	1,464	.....
Totals.....	4,655	4,655	2,038	2,038

(This statement of excesses and deficiencies does not take into account other sources of supply such as immigration.)

This table means that about three times as many boys as those who received industrial training before

leaving school last year will be needed in the industries; for trade and commerce nearly twice as many will be needed as had taken commercial and trade work; more than three times as many studied for professional vocations as the demand appears to call for, and those who had no vocational training must secure training as best they can. The Continuation School is of promise here. The totals also have meaning. They show that of the more than 4,500 boys who ended their school life last year over 2,000, or nearly one half, have not taken the kind of work in school that will enable them to fit to the best advantage into the occupational life of Boston. It is well to note that the Continuation School serves to meet this misfit condition in a greater or less degree, for during the year under consideration 2,592 boys received some vocational aid in this type of school which enabled them the better to meet the conditions which concern them at the present moment. But this in no wise can be deemed an equivalent to an adequate vocational training during the period of school life.

The preceding figures presenting the conditions with reference to the boys constitute a fair and reasonable index of the types of vocational education which should be emphasized. This is seen when it is noted, as shown in Table I, that of the 268,870 males ten years of age and over in Boston, 220,222 were employed in gainful occupations, leaving 48,648 to be accounted for otherwise. Of this number about 30,000 were still in the public schools. The remaining 18,000 is not an excessive number when we consider the number of males in private schools, in institutional life, retired from occupation on account of age or other cause, those at leisure, and those without any occupation.

When we come to study the data showing the vocations of the women in Boston the problem cannot be so definitely solved. Table II shows that there were only 96,326 females engaged in gainful occupations out of a total number of 281,211 who were ten years of age and over; that is, about two thirds of the women are not occupied in gainful employment. The number of girls over ten years of age still attending the public schools was about 29,000. This leaves more than 155,000 to cover those at private schools, in institutions, at home without occupation, homekeeping and others. Statistics are not accessible to show the number of women whose occupation lies within domestic science

and arts in keeping their own homes, but it is undoubtedly true that the great majority of the 155,000 women not employed in gainful occupations are engaged in occupations of domestic and personal service. This must be accepted as a factor in working out the vocational education of the girls at school. That there are no data giving the number so occupied is what makes the solution of this part of the problem indefinite. It is thus seen that this study can consider the problem quantitatively only from the viewpoint of the number of females engaged in money-earning occupations. It remains for the school authorities to make such additions thereto for those engaged in unpaid occupations as the best information obtainable by them shall justify.

It has already been shown in discussing Table II that by giving the girls the vocational training called for by the gainful vocational needs for women in Boston, they will be prepared for the occupational life elsewhere as well.

In the City of Boston the gainful occupations followed by females are set forth in Table VII below. This table was compiled similarly to that showing the specified occupations for males (Table III). The arrangement of items in the census reports was again disregarded and some items combined so as to make the table serve better the purposes of school authorities.

TABLE VII.

Total Number of Females 10 Years of Age and Over Engaged in Each Specified Gainful Occupation in Boston and the Number per 1,000 so Engaged.

Item.	OCCUPATIONS.	Number Engaged.	Number per 1,000.
1	Apprentices (chiefly dressmaking and millinery).....	236	2
2	Manufacturers, officials, managers and superintendents.....	163	2
3	Forewomen and overseers (manufacturing and trade).....	534	6
4	Dressmakers and seamstresses.....	6,568	68
5	Milliners and millinery dealers.....	1,840	19
6	Tailoresses.....	1,295	13
7	Clothing factories, sewers and sewing machine operatives....	4,717	49
8	Textile mills.....	1,153	12
9	Shoe factories and other leather industries.....	1,843	19
10	Other factories.....	4,442	46
		22,791	236
11	Wholesale and retail dealers.....	1,333	14
12	Insurance and real estate.....	108	1
13	Bookkeepers, cashiers and accountants.....	5,636	59

TABLE VII.—*Concluded.*

Item.	OCCUPATIONS.	Number Engaged.	Number per 1,000.
14	Clerks.....	4,505	47
15	Stenographers and typewriters.....	5,124	53
16	Telegraph and telephone operators.....	1,726	18
17	Compositors (printing) and linotypers.....	399	4
18	Printing and bookbinding.....	1,087	11
19	Saleswomen in stores and commercial travelers.....	6,614	69
20	Agents, canvassers and collectors.....	125	1
		26,657	277
21	Hotel, boarding house and restaurant keepers.....	3,332	35
22	Housekeepers.....	2,278	24
23	Bakeries and food factories.....	2,346	24
24	Nurses (not trained).....	1,761	18
25	Servants.....	17,071	177
26	Waiters.....	3,239	34
27	Laundresses and laundry operatives.....	4,222	44
28	Charwomen, cleaners and janitresses.....	1,115	12
29	Hairdressers and manicurists.....	548	6
30	Scattering (not including professional pursuits).....	835	9
		36,747	383
31	Unskilled labor.....	1,556	16
32	Actresses.....	330	3
33	Artists, sculptors and teachers of art.....	310	3
34	Authors, editors and reporters.....	147	2
35	Musicians and teachers of music.....	1,274	13
36	Physicians and surgeons.....	258	3
37	Teachers (school and college).....	3,492	36
38	Trained nurses.....	1,669	17
39	Other professional and semi-professional pursuits.....	1,095	11
		8,575	88
	Totals.....	96,326	1,000

Items 1 to 10 of this table show that 236 females per thousand engaged in gainful occupations, or 23.6 per cent, are occupied in manufacturing and mechanical industries; Items 11 to 20, that 277 per thousand, or 27.7 per cent, are engaged in trade and commerce; Items 21 to 30, that 383 per thousand, or 38.3 per cent, are occupied in domestic and personal service; Items 32 to 39, that 88 per thousand, or 8.8 per cent, follow professional vocations; Item 31, that 16 per thousand, or 1.6 per cent, perform some form of unskilled labor. Unlike the rates deduced for the boys, these rates per cent are not a final index of the demands of the vocations in Boston for women in adult life. The rates for domestic and personal service and, to a less degree for manufacturing and mechanical industries, should be materially increased because of housekeeping, dress-making and sewing and other activities of the home. This would result naturally in lower rates per cent for the other vocational groups. But these figures do

show the relative proportion of women in the several groups of gainful occupations, and because so many are so engaged the problem must be worked out for them at least as well as for the occupations concerned.

Referring to Table IV, it is seen that of the 9,637 pupils leaving school during 1914-15 approximately 4,982 were girls, about 2,497 of them leaving from the elementary schools, 2,025 from secondary schools, 14 from the Normal School and 446 from special schools. Applying the rates per cent representing the demands of the gainful occupations for these 4,982 girls who left school, it is indicated that about 1,176 of them may find employment in the manufacturing and mechanical industries, about 1,380 in trade and commercial pursuits, about 1,908 in domestic and personal service as wage earners, about 438 in professional activities and about 80 in some form of unskilled labor.

The column in Table VII showing the number per thousand in each gainful occupation indicates the more detailed distribution of these girls among these several occupations. It means that about 882 will be needed as servants; 652 dressmakers, seamstresses and clothing makers; 538 as bookkeepers, cashiers and clerks; 349 as saleswomen and commercial travelers; 264 stenographers and typewriters; 229 as factory operatives not elsewhere specified; 219 as laundresses and laundry operatives; 179 teachers in school and college; 174 as hotel, boarding and lodging house keepers; 169 as waitresses; 120 as housekeepers; 120 in bakeries and other food products; 100 milliners and millinery dealers; 95 in shoe and leather industries; 90 telegraph and telephone operators; 90 nurses, not trained; 85 trained nurses; 75 bookbinders and printers; 70 wholesale and retail dealers; 65 musicians and music teachers; 60 in textile mills; 60 janitresses, charwomen and cleaners; 15 physicians and surgeons; 15 artists and sculptors; 15 actresses, and 10 authors, editors and reporters.

In order to discover the numbers of these pupils who had undertaken the several courses or kinds of vocational training leading to the corresponding groups of vocations, it was necessary to approximate the distribution for those leaving the secondary schools. The numbers given for those leaving the normal and the special schools were ascertained directly from statistics furnished. The number for the elementary schools is



the number of girls receiving pre-vocational diplomas. The distribution for the secondary schools was obtained by prorating the total number leaving on the basis of the numbers taking the corresponding courses at the present time. The results showing the approximate number of girls who had taken specified vocational courses before leaving school during 1914-15 and those who had taken no such course are set forth in the following table:

TABLE VIII.

	KIND OF VOCATIONAL WORK TAKEN.				No Vocational Course.	Totals.
	Industrial.	Trade and Commerce.	Domestic Service.	Professional.		
Normal School.....				14		14
Secondary schools.....	135	860	60	566	404	2,025
Elementary schools.....	11				2,486	2,497
Special schools.....	5	441				446
Totals.....	151	1,301	60	580	2,890	4,982

By comparing these results with the numbers deduced above as the indicated need for women in gainful occupations, the excess and the deficiency will be shown. Table IX makes this comparison.

TABLE IX.

OCCUPATION GROUPS.	Number Needed.	Number Taking Training.	Excess.	Deficiency.
Manufacturing and mechanical industries.	1,176	151	.....	1,025
Trade and commerce.....	1,380	1,301	.....	79
Domestic and personal service...	1,908	60	.....	1,848
Professional service.....	438	580	142	
Unskilled labor.....	80	2,890	2,810	
Totals.....	4,982	4,982	2,952	2,952

(This statement of excesses and deficiencies does not take into account other sources of supply such as immigration.)

This table is illuminating, even though it is not so definitely positive as the corresponding table for the boys. We find that there is a deficiency in the supply of girls for the manufacturing and mechanical industries. The numbers that should be prepared for trade and commerce are nearly sufficient to meet the demands. The number trained for occupation in domestic and personal service is almost negligible in comparison with the excessively large number needed. The number receiving training towards professional vocations is only about one fourth greater than the demand. The Continuation School during the year 1914-15 gave help for immediate needs to 1,455 girls; besides this, it is well known that a large number received, in connection with their regular work in the elementary schools, very valuable training in the rudiments of domestic science and arts. These two points materially lessen the apparently large number of pupils who appear from the numbers above likely to be misfits in the occupational life of their home city. It is to be regretted that the United States Census Bureau has not compiled the data for females showing how many of them are engaged in nongainful occupations. Such figures would be of great value and service to school authorities.

In the foregoing part of this chapter the study has been based upon the number of pupils who left school, because this is the true and final basis for measuring the product of the school. But it will also be of service to know the extent and distribution of the vocational work now in process in the schools; that is, how many pupils are now taking vocational courses and how their proportionate distribution compares with the rates per cent representing the demand of the corresponding occupational group.

Data were received from the Superintendent's office showing the number of pupils in each specified vocational course in the several kinds of schools on December 1, 1915. In compiling the numbers for the tables below a pupil taking more than one course is counted in each course taken, thus producing more or less of duplication. This does not invalidate the comparison between the proportion of pupils in the several kinds of vocational work and the rates of demand of the related occupational groups.

TABLE X.

Number of Boys in Boston Public Schools December 1, 1915, Registered in Courses Tending Directly or Indirectly to the Occupational Groups Specified, and the Rate Per Cent of their Distribution Compared with the Rate Per Cent of Demand.

OCCUPATIONAL GROUPS.	Secondary Schools.	Elementary Schools (Pre-vocational).	Special Schools.	Continuation Schools.	Total, all Schools.	Rate Per Cent of Distribution.	Rate Per Cent of Demand.
Manufacturing and mechanical industries.	1,461	623	159	* 658	2,901	26.3	34.6
Trade and commerce.....	3,540	196	37	627	4,400	39.9	30.1
Professional service.....	3,720	.....	.....	.....	3,720	33.8	4.9
	8,721	819	196	1,285	11,021	.....	.....

\* Not including 302 boys taking course for general improvement.

The above table shows that there were, on December 1, 1915, 11,021 boys in vocational courses tending to the three occupational groups specified; that 26.3 per cent of them were working in industrial courses; 39.9 per cent of them in commercial and trade courses, and 33.8 per cent in courses tending to professional service. In comparing these rates per cent with the corresponding rates of demand, it must be constantly borne in mind that the two sets of rates refer to entirely different bases and that the comparison cannot, therefore, be absolute but must be purely relative. The table is intended to show simply the proportionate distribution of vocational work in the schools as compared with the proportionate demand or opportunity for such work in the occupations. No final conclusions should be drawn from this table nor from Table XI below, because the pupils are still at school, their work is only in process, and changes from one course to another are likely to occur.

The table below for the girls is similar to Table X for the boys, and the suggestions made with regard to the interpretation of the boys' table apply with equal force here. The table shows that on December 1, 1915, 11,447 girls were registered in vocational courses tending to the four occupational groups specified; that 7.4 per cent of them were in courses related to the manufacturing and mechanical industries; 40.7 per cent in courses making for trade and commerce; 16.2 per cent in domestic arts and science courses, and 35.7 per cent in courses

tending to professional service. The last column gives the corresponding rates per cent of demand in the gainful occupations.

The one unmistakable point shown by Tables X and XI is the need for an increased number of pupils in courses leading to manufacturing and mechanical industries.

TABLE XI.

Number of Girls in Boston Public Schools December 1, 1915, Registered in Courses Tending Directly or Indirectly to the Occupational Groups Specified, and the Rate Per Cent of their Distribution Compared with the Rate Per Cent of Demand.

OCCUPATIONAL GROUPS.	Secondary Schools.	Elementary Schools.	Special Schools.	Continuation Schools.	Total, all Schools.	Rate Per Cent of Distribution.	Rate Per Cent of Demand.
Manufacturing and mechanical industries.	.....	.....	539	* 308	847	7.4	23.6
Trade and commerce.....	4,334	.....	.....	329	4,663	40.7	27.7
Domestic and personal service.	474	1,155	27	193	1,849	16.2	38.3
Professional service.....	4,088	.....	.....	.....	4,088	35.7	8.8
	8,896	1,155	566	930	11,447	.....	.....

\* Not including 102 girls taking course for general improvement.

In conclusion, it may be summarized from the foregoing that the schools of Boston are already providing a large number of boys and girls with vocational education that will enable them to enter the occupations found in their own city and in other cities. It is evident that there should be a large increase in the numbers to receive training for the manufacturing and mechanical industries. In this connection probably the most important point is that many pupils leave the elementary schools without any vocational training. This indicates that there should be an increase in pre-vocational training. There is an undoubted deficiency in the number adequately prepared for domestic and personal service. The importance of proper preparation in this branch is as great for the home as it is for many paid services. There is an excess in the number of boys and girls taking vocational work leading to professional life; there is every indication that a large portion of them will not find need or opening for their services.

## CHAPTER VII.—BOSTON'S EXPENDITURES FOR SCHOOL PURPOSES COMPARED WITH THE EXPENDITURES OF OTHER LARGE AMERICAN CITIES.

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In seeking to ascertain whether a city's expenditure for school purposes is sufficient, insufficient, or excessive, information regarding the amounts spent in other cities is of value. This does not mean that the average disbursement of a number of cities, or the disbursement of any one city in the group, is the ideal expenditure. Figures for a group of cities represent, not the goal toward which communities are working, but the prevailing practice of cities — a compromise between what is thought to be desirable and what is found to be possible. In the absence of a more definite standard a record of the prevailing practice is useful as a scale by which to measure performance.

### CITIES COMPARED.

In the following pages Boston's expenditures for school purposes will be compared with the expenditures of other large American cities. Comparative figures will be given for total expenditures, for outlay for permanent improvements, for total expenditures for operation and maintenance, and for expenditures for the itemized purposes of operation and maintenance. As the educational problems of large cities differ materially from the problems of smaller cities, the study will deal with the cities for which data are available which resemble Boston most closely in size. Most of the comparisons made will include either 21 or 22 cities.

### SOURCES OF STATISTICS.

The greater part of the data used in the comparative study of expenditures are from the annual report of the United States Commissioner of Education. The statistics of these reports are compiled from schedules distributed from the Bureau of Education, which are filled out by local school authorities. As the accounting systems of the different cities are not on a uniform

basis, the comparability of some of the figures presented may have been affected, in minor respects, by variations in classification.

It is believed that possible errors arising from this source have been reduced to a minimum. The figures for Boston presented in the Commissioner's report have been compared with statistics compiled by the Business Agent of the Boston School Committee; in the course of the Cleveland School Survey the figures for Cleveland have been verified from the books of the clerk of the local Board of Education, and a study of the schedules on file in the office of the Commissioner of Education at Washington has made it possible to correct discrepancies of classification affecting reports for other cities. It is believed that the sources of error have been further reduced by excluding from the comparisons figures appearing under the head "miscellaneous items," which are presumably the ones most affected by differences in methods of accounting. The comparisons have been confined, in other words, to expenditures for operation and maintenance and outlays for improvements.

The methods of computation employed in this study and possible inaccuracies in results due to differences in accounting and to other causes are discussed at length in the Appendix. It seems well to emphasize at this point the fact that any inaccuracies of data or defects in method, mentioned in the text or in the appendix, are not of a sort seriously to affect the reliability or significance of the comparisons. In basing conclusions upon the figures presented, allowance will be made for limitations of data and of method.

Statistical accuracy is relative rather than absolute. Minor inaccuracies are met with, not only in comparative figures of the sort used in the present study, but in most social and fiscal statistics. The presence of such inaccuracies does not justify the entire rejection of statistical data.

Population figures, which are the kind of statistics with which the general public is most familiar, are seldom wholly accurate. The population of Boston as reported by the census enumerators in 1910 may have varied by several hundreds or even thousands of persons from the actual population of the city on the census day; the same is true of the census figure for 1900. But, while no one acquainted with the methods of census

taking would claim that the population returns for the city at either census are strictly and minutely accurate, it will hardly be questioned that the statistics prove that Boston was materially larger in 1910 than in 1900.

In considering relative disbursements for the schools the same principle applies. If Boston's expenditure per child in average daily attendance for an important educational purpose, such as teachers' salaries, were found to differ by only a few cents from the corresponding figure for some other city, it would seem possible that the difference was due to variations in classification or to inaccuracies in reporting; but, if the figure for Boston were found to be half as high again as that for the other city, there could be, in the absence of definite evidence to the contrary, little doubt that the difference between the figures represented a real difference in conditions. And, if the expenditures for one city were found to range, for a considerable number of items, well above the average for the group of cities, or well below, it would be difficult to escape the conclusion that the returns revealed, for the city considered, conditions that were exceptional in a significant way.

Differences in the methods of classifying accounts employed in different cities will not affect the figures representing total expenditures. It seems probable, moreover, that, where one city includes under a given head of the Commissioner's schedule expenditures which should not have been included, another city, or other cities, will include too little under this head. In other words, errors in classification made by the different cities will tend to balance each other, and it follows that the margin of error will be less when Boston's expenditures for any given item are compared with an average for the group of cities than when the Boston figures are compared with figures for any one city.

#### BASES OF COMPARISONS.

As total expenditure for school purposes is affected by wealth, population, the number of children of school age, the number of children attending public school and other factors, a direct comparison of expenditures in the different cities would be misleading. It is necessary, if comparisons are to yield valid and significant results, to reduce expenditures to some comparable unit. The units of comparison employed in the present study correspond to the methods by which the problem of

measuring the adequacy of school expenditures has been approached. One of these methods of approach is concerned with the emphasis that is being placed on the work of the schools as compared with other municipal activities; another with the relation of expenditures to resources, and a third with the relation of expenditures to the size of the city's educational problem.

### PROPORTION OF MUNICIPAL EXPENDITURE DEVOTED TO SCHOOLS.

Does Boston, as compared with other cities of similar size, devote a large or a small proportion of its total governmental expenditure to the maintenance, operation and improvement of its public schools? Table 1 shows, for 22 cities, total governmental cost expenditures, expenditures for public schools and the percentage relationship of expenditure for schools to total expenditure.

TABLE I.

Proportion of Total Governmental Cost Payments Devoted to School Purposes in Boston and in 21 Other Cities. 1913.<sup>1</sup>

CITY.	All Purposes.	GOVERNMENTAL COST PAYMENTS FOR SCHOOL PURPOSES. <sup>2</sup>		Rank in Per Cent of Gov- ernmental Cost Payments Devoted to School Purposes.
		Amount.	As a Per Cent of Payments For All Purposes.	
Baltimore.....	\$18,090,899	\$2,544,186	14.1	21
Boston.....	32,553,175	5,877,619	18.1	17
Buffalo.....	15,522,286	2,774,296	17.9	18
Chicago.....	67,801,957	13,212,259	19.5	11
Cincinnati.....	14,929,267	2,720,466	18.2	15
Cleveland.....	18,554,874	3,987,673	21.5	6
Detroit.....	16,542,571	3,250,905	19.7	10
Indianapolis.....	5,425,024	1,528,871	28.2	3
Jersey City.....	6,423,276	2,012,220	31.3	1
Kansas City.....	11,363,638	2,388,674	21.0	8
Los Angeles.....	26,202,673	4,853,343	18.5	14
Milwaukee.....	10,373,414	2,284,101	22.0	5
Minneapolis.....	11,172,189	3,290,317	29.5	2
Newark.....	13,955,856	3,395,909	24.3	4
New Orleans.....	8,878,170	1,526,592	17.2	19
Philadelphia.....	43,311,948	7,876,271	18.2	16
Pittsburgh.....	22,836,171	4,407,776	19.3	12
Portland.....	12,469,020	2,404,120	19.3	13
San Francisco.....	27,557,301	2,535,578	9.2	22
Seattle.....	13,234,476	2,115,020	16.0	20
St. Louis.....	21,516,430	4,283,987	19.9	9
Washington.....	12,339,165	2,646,546	21.4	7
Average.....			20.2	

<sup>1</sup> United States Bureau of the Census, Financial Statistics of Cities, 1913, pages 41-42.

<sup>2</sup> Includes expenses and outlays.



The amounts reported in Table 1 include outlays for permanent improvements as well as disbursements for operation and maintenance. The data upon which the table is based are derived, not from the reports of the Commissioner of Education, as are the statistics used in compiling most of the tables of this study, but from the report of the Bureau of the Census entitled "Financial Statistics of Cities." The distinction is an important one. As has been seen, the Commissioner of Education secures information relative to city expenditures by

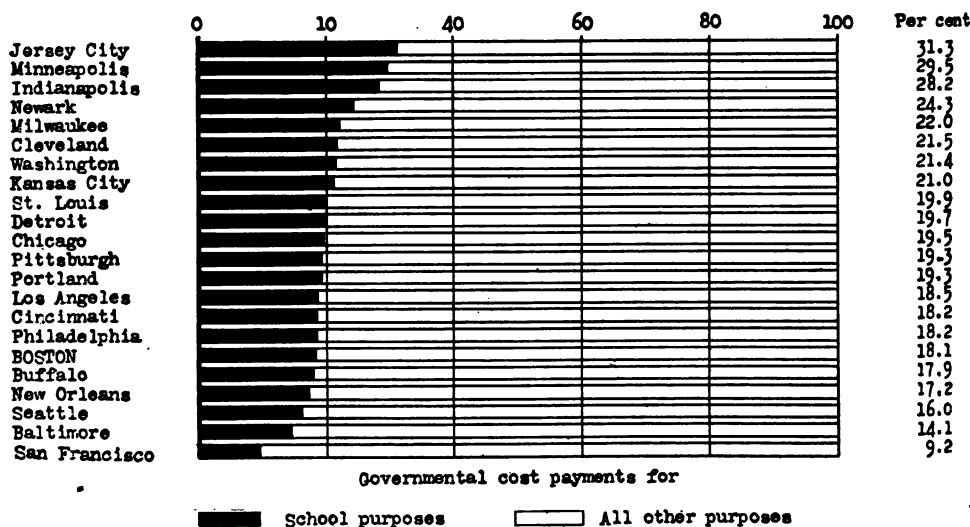


Diagram 1. Proportion of Total Governmental Cost Payments Devoted to School Purposes in Boston and in 21 Other Cities.

means of schedule inquiries, and the possible inaccuracies discussed in the text and in the appendix are the result of this method of investigation. The Bureau of the Census does not rely, in gathering information relative to municipal expenditures, upon schedules sent out by mail, but sends to each city an expert special agent who draws off from the municipal accounts such information as he may need. If, in a given city, the classification of accounts does not correspond exactly to the classification of the census schedule, the special agent makes the necessary adjustment. As all the agents employ the same methods and are guided by the

same instruction, the result of their inquiry is a strictly comparable set of figures. The figures of Table 1 are for 1913, the most recent year for which data are available.

It appears from the table that in Boston the proportion of governmental expenditures devoted to the schools is materially smaller than in the average city. Among the 22 cities Boston ranks seventeenth. The figure for Boston is 18.1 per cent, while the average for the group of cities is 20.2 per cent. If a conclusion may be based upon the prevailing practice, the Boston schools are getting somewhat less than their due share of the money which the city is spending for social and governmental purposes.

#### EXPENDITURE PER INHABITANT.

Expenditures for school purposes are affected, in a general way, by the size of the city. It is not to be expected that a city of less than 300,000 inhabitants, such as Indianapolis, will spend as much upon its schools as a city of over 600,000 inhabitants, such as Cleveland. The simplest way of allowing for differences in size is to divide expenditures for school purposes by the number of inhabitants, thus obtaining expenditure per inhabitant. The results of such a computation appear in Table 2.

Comparisons based upon expenditure per inhabitant have serious limitations of usefulness. It may, with propriety, be objected that a city's population does not determine either what it can spend for school purposes or what it should spend. Population does not necessarily represent ability to contribute to the support of the public schools. Neither is the number of children to be educated indicated by the population returns, for the number of children per 1,000 persons in the total population may be much smaller in some cities than in others. Population is not, however, to be ignored in any discussion of relative expenditures; it constitutes one of a number of significant factors which affect the comparisons.

TABLE 2.

**Expenditure Per Inhabitant for Operation and Maintenance of Schools in Boston and in 20 Other Cities. 1914.**

CITY.	Estimated Population in 1914 <sup>1</sup> .	EXPENDITURE FOR OPERATION AND MAINTENANCE.		Rank in Expenditure Per Inhabitant.
		Total <sup>2</sup>	Per Inhabitant.	
Baltimore.....	579,590	\$1,954,670	\$3 37	20
Boston.....	733,802	5,516,762	7 52	2
Buffalo.....	454,112	2,449,533	5 30	13
Chicago.....	2,393,325	12,731,954	5 32	14
Cleveland.....	639,431	3,569,504	5 58	9
Detroit.....	537,650	2,533,488	4 75	16
Indianapolis.....	259,413	1,409,504	5 43	12
Jersey City.....	293,921	1,421,147	4 84	15
Kansas City.....	281,911	1,761,389	6 25	7
Los Angeles.....	438,914	3,706,519	8 45	1
Milwaukee.....	417,054	1,794,796	4 30	17
Minneapolis.....	343,466	2,147,856	6 25	6
Newark.....	399,106	2,699,239	6 94	3
New Orleans.....	361,221	1,097,552	3 04	21
Philadelphia.....	1,657,810	7,081,830	4 27	18
Pittsburgh.....	564,878	3,602,303	6 38	5
Portland.....	260,601	1,424,938	5 47	11
San Francisco.....	448,502	1,879,187	4 19	19
Seattle.....	313,029	1,750,998	5 50	8
St. Louis.....	734,667	4,084,693	5 56	10
Washington.....	353,378	2,391,976	6 77	4
Average.....			\$5 51	

<sup>1</sup> Estimates of Population, United States Bureau of the Census.

<sup>2</sup> Annual report of the United States Commissioner of Education for 1914, Volume II., chapter II., Table 12.

The figures of Table 2 are from the reports of the Commissioner of Education. Statistics are presented for the school year 1913-14, the most recent year for which data are available for all the cities. All consideration of expenditure for new buildings and other permanent improvements in the school plant has been omitted from this table; the statistics presented relate solely to expenditure for the operation and maintenance of the schools.

It will be seen that Boston's expenditure for school purposes per inhabitant exceeds by a substantial margin that of the average city. The figure for Boston is \$7.52, while the average for the group of cities is but \$5.51. Of the 21 cities for which data are available, only one, Los Angeles, is reported to have spent more per inhabitant than Boston for the operation and maintenance of its schools.

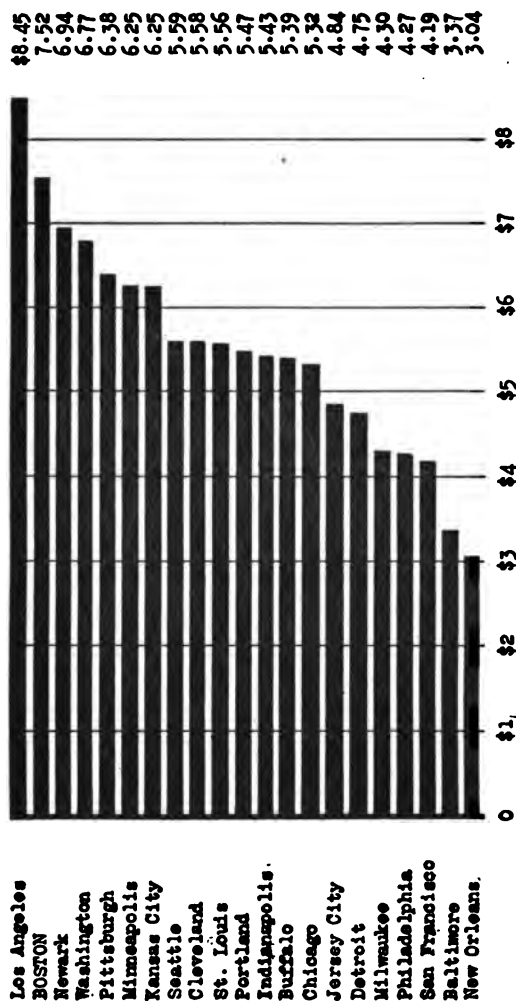


Diagram 2. Expenditure Per Inhabitant for Operation and Maintenance of Schools in Boston and in 20 Other Cities.

## EXPENDITURE PER \$1,000 OF TAXABLE WEALTH.

Perhaps the most satisfactory measure of a city's ability to spend money for school purposes is supplied by the amount of the taxable wealth of the community. The cities compared vary widely as to wealth. Is the ratio of school expenditure to wealth lower or higher in Boston than in other communities? Table 3 shows expenditure per \$1,000 of taxable wealth for the group of cities. In this table, as in Table 2, the comparison is confined to expenditure for the operation and maintenance of schools, and the data are for 1913-14.

TABLE 3.

Expenditure Per \$1,000 of Wealth for Operation and Maintenance of Schools in Boston and in 20 Other Cities. 1914.

CITY.	Estimated True Value of all Property Assessed. <sup>1</sup>	EXPENSE AND OUTLAY FOR SCHOOL PURPOSES.		Rank in Expenditure <sup>2</sup> Per \$1,000 of Property Assessed.
		Total. <sup>2</sup>	Per \$1,000 of Property Assessed.	
Baltimore.....	\$723,800,340	\$1,954,670	\$2 70	20
Boston.....	1,489,608,820	5,516,762	3 70	12
Buffalo.....	494,200,459	2,449,533	4 96	3
Chicago.....	3,761,800,684	12,731,954	3 38	17
Cleveland.....	756,831,185	3,569,504	4 72	5
Detroit.....	598,634,198	2,553,488	4 27	10
Indianapolis.....	363,413,650	1,409,504	3 88	11
Jersey City.....	257,644,605	1,421,147	5 52	2
Kansas City.....	371,191,014	1,761,389	4 75	4
Los Angeles.....	836,604,260	3,706,519	4 43	9
Milwaukee.....	511,720,797	1,794,796	3 51	15
Minneapolis.....	639,258,841	2,147,856	3 36	18
Newark.....	383,864,182	2,699,239	7 03	1
New Orleans.....	314,086,036	1,097,552	3 49	16
Philadelphia.....	1,556,323,614	7,081,830	4 55	7
Pittsburgh.....	789,035,200	3,602,303	4 57	6
Portland.....	481,057,404	1,424,938	2 96	19
San Francisco.....	1,247,391,284	1,879,187	1 51	21
Seattle.....	473,174,995	1,750,998	3 70	13
St. Louis.....	1,125,308,749	4,084,693	3 63	14
Washington.....	538,389,607	2,391,976	4 44	8
Average.....			\$4 05	

<sup>1</sup> United States Bureau of the Census, "Financial Statistics of Cities, 1913." The true value of property assessed has been estimated from the actual assessed value and the reported percentage relationship of the assessed value to the true value.

<sup>2</sup> Annual report of the United States Commissioner of Education for 1914, Volume II., chapter II., Table 12.

In expenditure per unit of wealth, Boston ranks twelfth among the 21 cities for which information is available. Boston's expenditure for operation and maintenance per \$1,000 of taxable property is \$3.70, while the average for the group of cities is \$4.05.

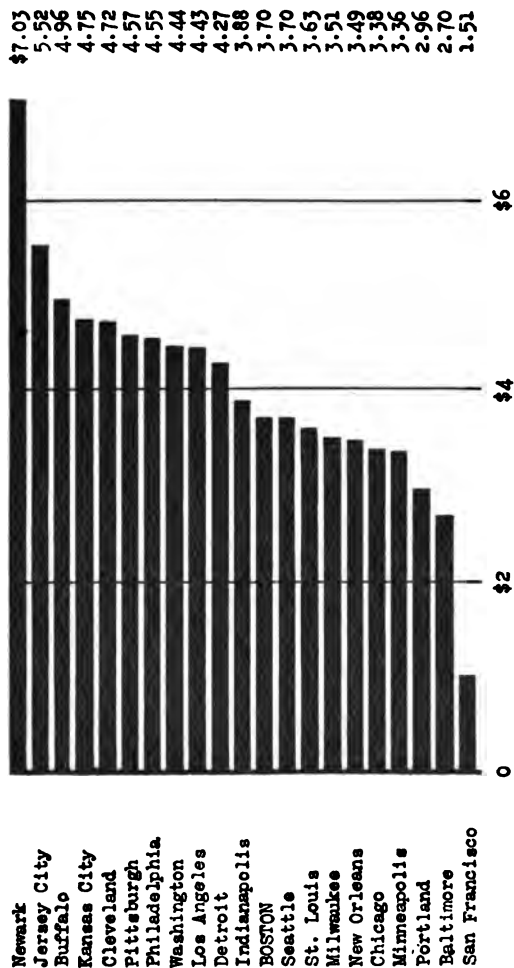


Diagram 3. Expenditure Per \$1,000 of Wealth for Operation and Maintenance of Schools in Boston and in 20 Other Cities.

**EXPENDITURE PER PUPIL IN AVERAGE DAILY  
ATTENDANCE.**

Whether or not a city's expenditure for school purposes is adequate cannot be determined solely from a consideration of the city's proportional expenditure for schools or of the relation of expenditure to wealth or population. Expenditure must be related to the size of the educational problem. The size of the problem may be measured in two ways: first, by the number of children to whom the city owes an education, and second, by the number of children actually attending school. The city owes an education to all children of school age whose education is not being supplied by private agencies. Unfortunately, complete and accurate data as to the number of these children are not available, owing to the insufficiency of most school censuses. In the absence of trustworthy figures relative to the number of children who should be in school, the size of the school problem may best be represented by the number of children in average daily attendance. This measure is not affected by variations in the enforcement of compulsory attendance laws or in methods of compiling statistics of enrollment.

But expenditure for each pupil in average daily attendance is not significant solely, nor even primarily, as a substitute for expenditure for each child who should be in school. This ratio is qualified to stand upon its merits; it probably constitutes the best single measure of the sufficiency of the amount spent for school purposes. Expenditure per child in average daily attendance indicates the provision of educational tools and supplies with which the school staff is asked to do a given amount of work. This ratio states expenditures in terms of what is actually being done. It is, moreover, a relative measure which may be applied uniformly to all cities. In Tables 2 and 3 of this report comparisons are confined to expenditure for the operation and maintenance of the schools. Table 4 shows expenditure per pupil in average attendance for operation and maintenance and also average annual outlay per pupil for new buildings and other permanent improvements in the school plant.

TABLE 4.

**Expenditure for Operation and Maintenance of Schools and Outlay for Improvement of School Plant Per Child in Average Daily Attendance in Boston and in 20 Other Cities.<sup>1</sup>**

CITY.	EXPENDITURE PER CHILD IN AVERAGE DAILY ATTENDANCE FOR		RANK IN EXPENDITURE PER CHILD IN AVERAGE DAILY ATTENDANCE FOR	
	Operation and Maintenance, 1913-14.	Average Annual Outlay for New Buildings, Grounds, New Equipment.	Operation and Maintenance.	Outlay.
Baltimore.....	\$32 54	\$8 93	21	18
Boston.....	56 73	11 39 <sup>2</sup>	4	14
Buffalo.....	51 32	27 78 <sup>2</sup>	10	3
Chicago.....	47 48	19 29 <sup>2</sup>	12	5
Cleveland.....	46 38	13 81	14	12
Detroit.....	44 66	17 73	16	9
Indianapolis.....	46 59	9 98 <sup>2</sup>	13	17
Jersey City.....	43 17	16 63 <sup>2</sup>	17	10
Kansas City.....	52 96	21 57	6	4
Los Angeles.....	64 78	16 49 <sup>2</sup>	1	11
Milwaukee.....	38 51	7 60	19	20
Minneapolis.....	52 70	18 84	7	7
Newark.....	50 25	19 19	11	6
New Orleans.....	33 07	4 93	20	21
Philadelphia.....	40 74	8 64	18	19
Pittsburgh.....	58 97	12 13 <sup>2</sup>	3	13
Portland.....	55 38	36 72	5	1
San Francisco.....	45 08	34 89	15	2
Seattle.....	61 18	18 54	2	8
St. Louis.....	52 40	10 86 <sup>2</sup>	8	16
Washington.....	51 34	11 31 <sup>2</sup>	9	15
Average of per capita (simple).....	\$48 87	\$16 54	.....	.....

<sup>1</sup> Based on figures presented in the annual reports of United States Commissioner of Education for 1911, 1912, 1913 and 1914.

<sup>2</sup> Average for three years for which data are available.

<sup>3</sup> Average for two years for which data are available.

#### NEW BUILDINGS AND OTHER IMPROVEMENTS.

As the amount of money spent for new buildings, land and other permanent improvements varies in all cities from year to year, statistics of expenditure for improvements in a single year might well be misleading — the figure for any one city might relate to a year of



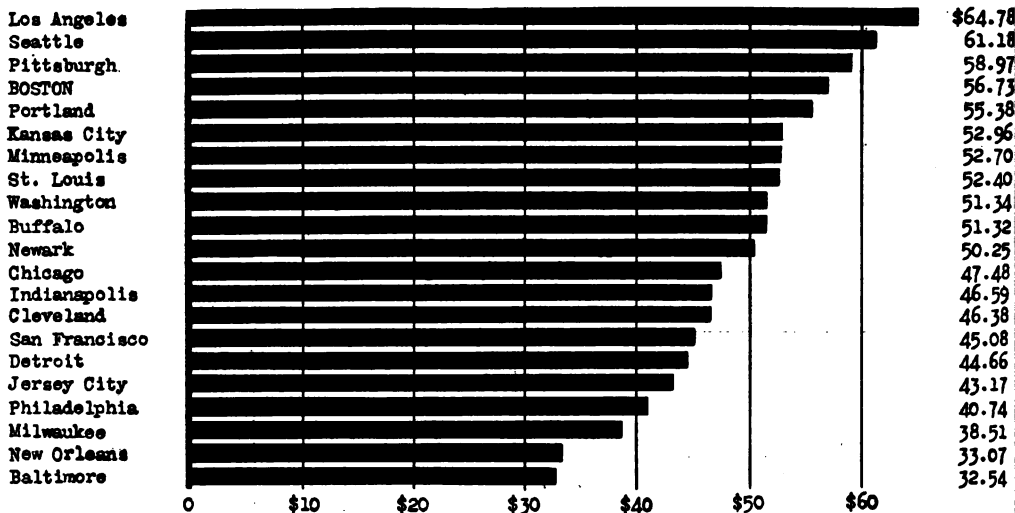


Diagram 4. Expenditure for Operation and Maintenance of Schools Per Child in Average Daily Attendance for Boston and for 20 Other Cities.

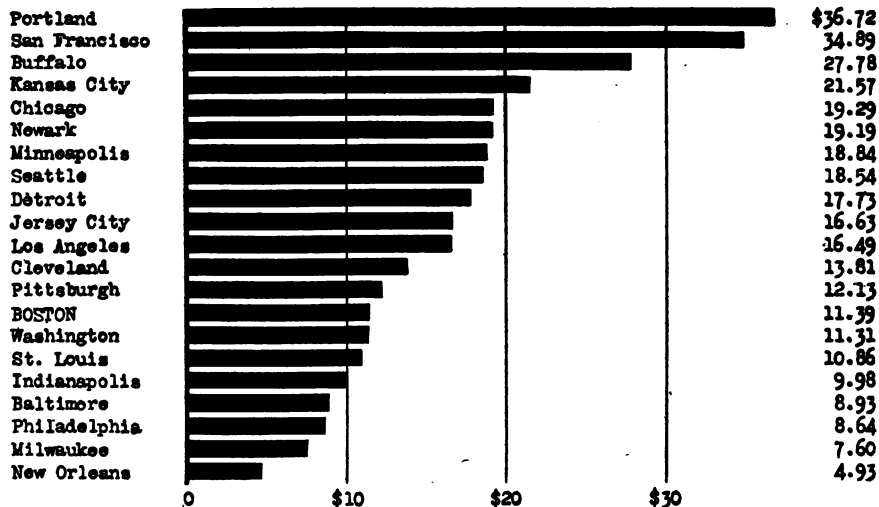


Diagram 5. Outlay for Improvement of School Plant Per Child in Average Daily Attendance for Boston and for 20 Other Cities.

unusual expansion or to a year of unusually slow progress. In order so far as possible to avoid this difficulty, average expenditures for all the recent years for which information is available have been divided by the average number of children in daily attendance in these years. Data for four years are available for 12 of the 21 cities; data for three years, for 5 cities, including Boston; and data for two years for four cities.

It appears from the table that Boston's expenditure for improvements is relatively low. The figure for Boston is \$11.39, as compared with an average of \$16.54 for the group of cities. Boston ranks fourteenth among the 21 cities in expenditure for improvements.

#### OPERATION AND MAINTENANCE.

While showing that Boston has been spending relatively little for improvements Table 4 also shows that, for the operation and maintenance of its schools, this city spends much more than the average city. Boston's expenditure for operation and maintenance per child in average daily attendance is \$56.73, while the average for the group of cities is \$48.87. Among the 21 cities Boston ranks fourth. The only cities spending more than Boston are Los Angeles and Seattle, two cities of the Pacific Coast, where salaries and other items of expenditure are in general much higher than in the East or the Middle West, and Pittsburgh, a city in which the reorganization of the schools has resulted in recent years in unusually large expenditures.

Expenditures for operation and maintenance have now been compared on three different bases — population, wealth and attendance. In Diagram 6 the results of the three comparisons are shown together. It will be noted that Boston, while standing low in expenditure per unit of wealth, stands high both in expenditure per inhabitant and in expenditure per pupil in average daily attendance. As the same expenditure figures were used in computing each ratio, this difference in ranking means necessarily that Boston is, in relation to its population and its school attendance, an exceptionally wealthy city. It seems then that this city can afford better than some other cities liberal disbursements for the operation and maintenance of schools.

### PROPORTION OF EXPENDITURE DEVOTED TO SPECIAL ACTIVITIES.

The figures for operation and maintenance appearing in the tables already presented include amounts spent

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Expenditure  
per  
inhabitant

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Expenditure  
per \$1,000 of  
taxable wealth

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Expenditure  
per child in  
average daily  
attendance

The shaded rectangles represent Boston

Diagram 6. Rank of Boston in a Group of 21 Cities in Expenditure for Operation and Maintenance of Schools Per Inhabitant, Per \$1,000 of Taxable Wealth, and Per Child in Average Daily Attendance.

for evening schools and special schools, as well as amounts spent for elementary schools and high schools.

It is evident that the ranking of the different cities, and Boston's position in the group, may be affected by

differences in the emphasis placed upon special activities of various types. Thus, if Boston spends more for special schools than does the average city, this fact may be responsible in a large measure for Boston's relatively high expenditure for school purposes per inhabitant and per child in average daily attendance. While there is no reason why expenditure for special activities should not be included in a figure representing the total amount expended for school purposes,—the amounts that the different cities are spending for all school purposes are highly significant,—it is also important to know to what extent, if any, Boston's relative position is determined by special emphasis upon school work other than that of the regular elementary schools and high schools.

In order to ascertain whether or not Boston spends much more than the average city for the special activities just mentioned, the portion of expenditure for instruction, for operation of plant, and for maintenance of plant which properly applies to elementary and secondary schools has been determined. Figures for the 10 cities for which information is available are given in Table 5. The statistics relate to 1912, the most recent year for which figures are available.

TABLE 5.

Proportion of Total Expenditure for Instruction and for Operation and Maintenance of Plant which is Used for Elementary and Secondary Schools in Boston and in 9 Other Cities. 1912.<sup>1</sup>

CITY.	EXPENDITURE FOR INSTRUCTION, OPERATION OF PLANT, AND MAINTENANCE OF PLANT.			Rank in Pro- portion of Total Expen- diture for In- struction, Operation of Plant, and Maintenance of Plant Devoted to Elementary and Secondary Schools.
	Total.	ELEMENTARY AND SECONDARY SCHOOLS.		
		Amount.	Per Cent of Total.	
Boston.....	\$4,185,754	\$3,949,195	94.3	7
Cleveland.....	2,659,678	2,466,094	92.7	9
Detroit.....	2,045,879	1,942,899	95.0	4
Jersey City.....	1,157,700	1,099,920	95.0	3
Minneapolis.....	1,930,476	1,901,165	98.5	1
Newark.....	2,278,927	1,975,222	86.7	10
New Orleans.....	1,040,827	980,416	94.2	8
Philadelphia.....	5,713,861	5,406,914	94.6	6
Portland.....	1,107,864	1,067,100	96.3	2
San Francisco.....	1,772,058	1,682,254	94.9	5
Average.....			94.2	

<sup>1</sup> Annual report United States Commissioner of Education, 1912, Volume II., chapter II., Table 10, Part II.

It appears from the table that in Boston, while the proportion of the total expenditure which applies to elementary and secondary schools is lower than in some cities, it is higher than in others. Boston ranks seventh among the 10 cities for which data are available in the ratio of expenditure for elementary and secondary schools to all expenditures for the purposes mentioned. While 94.3 per cent of the Boston expenditures are for elementary and secondary schools, Cleveland devotes but 92.7 per cent and Newark 86.7 per cent of its total expenditures to these schools. The percentage for four other cities, Philadelphia, San Francisco, Detroit and Jersey City, exceed by only a very narrow margin — less than 1 per cent — the percentage recorded for Boston. The average for the group of cities is 94.2 per cent.

According to data supplied by the Business Agent of the Boston School Committee, out of Boston's total expenditure of \$5,516,762 for the operation and maintenance of its schools, about \$5,129,000, or 93 per cent, was expended for the regular work of elementary schools, secondary schools and kindergartens. The figure cited is not wholly accurate, as it includes all administrative expenditures, a small proportion of which is properly chargeable to special activities. It is, however, an interesting point that Boston's approximate expenditure for elementary and secondary schools per child in average daily attendance in those schools (the quotient obtained by dividing \$5,129,000 by 97,248) is \$52.74, a figure higher than the average expenditure for all school purposes reported in Table 4 for the group of cities.

It is clear that the factor just considered affects the total amount spent. It affects also, in a different way, the ratios showing expenditure per pupil in average daily attendance, presented in Table 4 and in tables appearing elsewhere in the report. As these per capita have been computed by dividing total expenditures for all purposes by the number of children attending elementary schools, secondary schools and kindergartens, any variation as between the cities in the ratio of pupils in these schools to all pupils, or in the ratio of expenditures for elementary schools and secondary schools to all expenditures, introduces an element of error in the comparisons. It has been seen, however, that, in the cities for which information is available, the variation in ratios of expenditure for the regular school purposes

to total expenditures is not a wide one. Moreover, as no city is without some special activities, the omission of children attending these schools from the divisor used in computing ratios tends in all cases to increase expenditure per pupil in average daily attendance — the factor everywhere operates in the same direction. This subject is discussed more fully in the Appendix.

#### ITEMIZED EXPENDITURES FOR OPERATION AND MAINTENANCE.

As the expenditure of a city school system for operation and maintenance is the aggregate of a number of items, Boston's relatively high expenditure may be due either to large disbursements for all or a large proportion of the purposes represented by these items, or to exceptionally large expenditures for one or a few purposes. A consideration of the amounts spent for the different items may reveal significant facts about the apportionment of school expenditures.

In the reports of the Commissioner of Education, expenditures for operation and maintenance are classified under 16 heads. The items represented by these heads differ widely in importance, and certain items relate to activities which are provided for from school funds in some cities but not in others. Cities differ as to the free provision of textbooks and as to the maintenance of school libraries. While nearly all cities seek to protect the health of children attending the public schools, this work is done in some instances by the city department of health and the expenditures made are not included in school expenditures. In some instances the schools pay for their water supply; in others, water is supplied by the municipality. On the other hand, all cities must provide for the salaries of a superintendent, of principals and of teachers; for the maintenance and repair of buildings, and for the support of administrative offices. As the variations in practice just mentioned affect the comparability of data, expenditures for Boston and the other cities will be shown only for items representing activities essential to the operation of the public schools which are everywhere under the control of the educational authorities.

Tables 6, 7, and 8 show expenditure per child in average daily attendance in Boston and in 20 other cities for each of the following purposes:

Office of board and other business offices.

Superintendent's office.

Salaries and expenses of supervisors.

Salaries and expenses of principals.

Salaries of teachers.

Stationery, supplies and other instruction expenses.

Wages of janitors and other employees.

Fuel.

Maintenance — repairs, replacement of equipment, etc.

TABLE 6.—Pupils in Average Daily Attendance in Day Schools and Classified Expenditure for Schools in Boston and in 20 Other Cities. 1914.<sup>1</sup>

City.	Pupils in Average Daily Attendance.	EXPENDITURE FOR				
		Office of Board and Other Business Offices.	Superintendent's Office.	Salaries and Expenses of Supervisors.	Salaries and Expenses of Principals.	Salaries of Teachers.
Baltimore.....	60,078	\$16,640	\$37,570	\$8,466	\$152,369	\$1,360,795
Boston.....	97,248	183,961	107,640	85,575	320,187	3,553,300
Buffalo.....	47,730	16,999	36,330	30,900	159,313	1,524,806
Chicago.....	268,151	176,198	227,609	39,479	828,319	8,631,072
Cleveland.....	76,972	143,285	39,628	45,156	173,329	2,266,308
Detroit.....	57,175	31,045	6,074	42,113	206,290	1,720,444
Indianapolis.....	30,253	35,551	22,466	48,108	70,435	839,267
Jersey City.....	32,916	14,177	35,459	15,022	111,245	930,189
Kansas City.....	33,259	69,317	36,185	19,254	143,201	1,079,963
Los Angeles.....	57,211	128,163	43,801	69,342	295,471	2,599,484
Milwaukee.....	46,605	18,243	32,978	14,759	142,444	1,275,897
Minneapolis.....	40,759	24,739	17,729	26,029	127,900	1,408,052
Newark.....	53,717	60,005	51,597	40,453	198,048	1,824,394
New Orleans.....	33,188	18,860	12,991	6,938	72,802	817,698
Philadelphia.....	73,829	204,711	135,558	52,199	504,425	4,589,199
Pittsburgh.....	61,090	176,084	77,364	93,042	278,501	1,945,161
Portland.....	25,729	46,733	23,264	32,392	90,569	1,006,367
San Francisco.....	41,683	32,417	18,376	11,880	181,200	1,421,036
Seattle.....	28,622	21,179	26,823	12,212	4,826 <sup>2</sup>	1,286,761 <sup>3</sup>
St. Louis.....	77,951	190,976	80,712	66,245	273,701	2,340,840
Washington.....	46,591	15,226	24,086	36,148	105,035	1,722,533

<sup>1</sup> The data for the 20 cities other than Cleveland and the Cleveland data for children in average daily attendance, for total expense, and for most of the itemized purposes are from the annual report of the United States Commissioner of Education for 1914, Vol. II., chapter II., Tables 10 and 12. The figures presented for Cleveland for five classes of expenditure, for salaries of principals, for salaries of teachers, and for maintenance, repairs, replacement of equipment, etc., differ from the corresponding figures of the Commissioner's report, having been compiled from a detailed classification made in the office of the clerk of the Board of Education which had not been completed at the time the Commissioner's schedule was filled out. The figures for outlay are averages for a series of years, compiled from the annual reports of the United States Commissioner of Education for the period 1911-14, inclusive.

<sup>2</sup> For Seattle the salaries of principals are included with salaries of teachers.



TABLE 6.—Concluded.

CITY.	EXPENDITURE FOR				Total Expenditure for Operation and Mainte- nance, Includ- ing Other Payments.	Average Annual Outlay for New Buildings, Grounds, New Equipment. <sup>1</sup>
	Stationary, Supplies and Other Instruction Expenses.	Wages of Janitors and Other Employees.	Average Annual Expenditure for Fuel. <sup>1</sup>	Maintenance, Repairs, Replacement of Equip- ment, Etc.		
Baltimore.....	\$56,377	\$145,519	\$52,116	\$28,579	\$1,954,670	\$508,000
Boston.....	151,012	332,103	126,510	371,106	5,516,762	1,079,367
Buffalo.....	98,814	155,278	73,339	204,257	2,449,533	1,320,758
Chicago.....	347,008	1,162,813	400,975	523,774	12,731,954	4,948,323
Cleveland.....	64,839	302,126	81,406	228,511	3,569,504	945,845
Detroit.....	76,350	239,248	59,658	98,879	2,553,488	88,195
Indianapolis.....	49,841	88,574	41,776	70,178	1,409,504	294,275
Jersey City.....	44,948	88,811	42,118	50,364	1,421,147	528,855
Kansas City.....	41,240	93,003	56,142	33,160	1,761,389	659,683
Los Angeles.....	105,600	163,526	23,792	151,822	3,706,519	844,035
Milwaukee.....	46,158	103,191	46,425	.....	1,794,796	310,313
Minneapolis.....	85,414	126,675	63,707	152,895	2,147,856	746,160
Newark.....	107,095	154,518	44,991	46,718	2,699,239	963,918
New Orleans.....	.....	53,096	10,648	40,966	1,097,552	158,481
Philadelphia.....	169,459	487,352	177,218	327,055	7,081,830	1,421,092
Pittsburgh.....	146,006	293,426	78,435	287,454	3,602,303	664,875
Portland.....	28,689	74,542	37,137	50,375	1,424,938	874,718
San Francisco.....	56,186	125,399	14,539	.....	1,879,187	1,373,853
Seattle.....	63,603	117,533	37,875	59,664	1,750,998	485,872
St. Louis.....	106,700	263,948	53,862	499,213	4,084,693	782,931
Washington.....	58,433	133,213	77,009	110,101	2,391,976	526,091

<sup>1</sup> The averages are for the four-year period, 1910-14, except as otherwise specified.<sup>2</sup> Average for three years for which data are available.<sup>3</sup> Average for two years for which data are available.

TABLE 7.  
Classified Expenditures Per Child in Average Daily Attendance for Boston and for 20 Other Cities, 1914.<sup>1</sup>

CITY.	EXPENDITURES PER CHILD IN AVERAGE DAILY ATTENDANCE FOR				EXPENDITURES PER CHILD IN AVERAGE DAILY ATTENDANCE FOR				
	Office of Board and Other Business Offices.	Superintendent's Office.	Salaries and Expenses of Supervisors.	Salaries and Expenses of Principals.	Salaries of Teachers.	Stationery, Supplies, and Other Instruction Expenses.	Wages of Janitors and Other Employees.	Average Annual Expenditure for Fuel. <sup>4</sup>	Maintenance, Repairs, Replacement of Equipment, Etc.
Baltimore.....	\$0 28	\$0 63	\$0 14	\$2 54	\$22 65	\$0 94	\$2 42	\$0 92	\$0 48
Boston.....	1 89	1 11	88	3 29	36 54	1 55	3 42	1 34*	3 82
Buffalo.....	36	76	65	3 34	31 95	2 07	3 25	1 54*	4 28
Chicago.....	86	85	15	3 09	32 19	1 29	4 34	1 56*	1 95
Cleveland.....	1 86	52	59	2 25	29 44	84	3 93	1 19	2 97
Detroit.....	54	11	74	3 61	30 09	1 34	4 18	1 19	1 73
Indianapolis.....	1 18	74	1 59	2 33	27 74	1 65	2 93	1 42*	2 32
Jersey City.....	43	1 08	46	3 38	28 26	1 37	2 70	1 32*	1 53
Kansas City.....	2 08	1 09	58	4 31	32 47	1 24	2 80	1 84	1 00
Los Angeles.....	2 24	77	1 21	5 16	45 44	1 85	2 86	46*	2 65
Milwaukee.....	39	71	32	3 06	27 38	99	2 21	1 14	*
Minneapolis.....	61	43	64	3 14	34 55	2 10	3 11	1 61	3 75
Newark.....	1 12	96	75	3 69	33 96	1 99	2 88	90	87
New Orleans.....	57	39	21	2 19	24 64	*	1 60	33	1 23
Philadelphia.....	1 18	78	30	2 90	26 40	98	2 80	1 08	1 88
Pittsburg.....	2 88	1 27	1 52	4 56	31 84	2 39	4 80	1 43*	4 71
Portland.....	1 82	90	1 26	3 52	39 11	1 12	2 90	1 56	1 96
San Francisco.....	78	44	29	4 35	34 09	1 35	3 01	37	*
Seattle.....	74	94	43	17*	44 96*	2 22	4 11	1 42	2 08
St. Louis.....	2 45	1 04	85	3 51	30 03	1 37	3 39	75*	6 40
Washington.....	33	52	78	2 25	36 97	1 25	2 86	1 66*	2 36
Average of per capita (simple).....	\$1 16	\$0 76	\$0 68	\$3 32*	\$31 79*	\$1 50*	\$3 17	\$1 19	\$2 52*

<sup>1</sup> Based on figures presented in Table 6.<sup>2</sup> The figure reported for Seattle under "salaries and expenses of principals" includes expenses only, salaries being included in the figure reported for "salaries of teachers." The averages computed for "salaries and expenses of principals" and for "salaries of teachers" are based on figures for the 20 cities other than Seattle.<sup>3</sup> No expenditure for "stationery, supplies and other instruction expenses" is reported for New Orleans, and no expenditure for "maintenance — repairs, replacement of equipment, etc.," is reported for Milwaukee or for San Francisco. The average computed for stationery, supplies, etc., is based on figures for the 20 cities other than New Orleans; the average for the maintenance item is based on figures for the 19 cities other than Milwaukee and San Francisco.<sup>4</sup> The averages are for the four-year period, 1910-14, except as otherwise specified.<sup>5</sup> Average for two years for which data are available.

TABLE 8.  
Rank of Boston and 20 Other Cities in Classified Expenditures for School Purposes Per Child in Average Daily Attendance, 1914.<sup>1</sup>

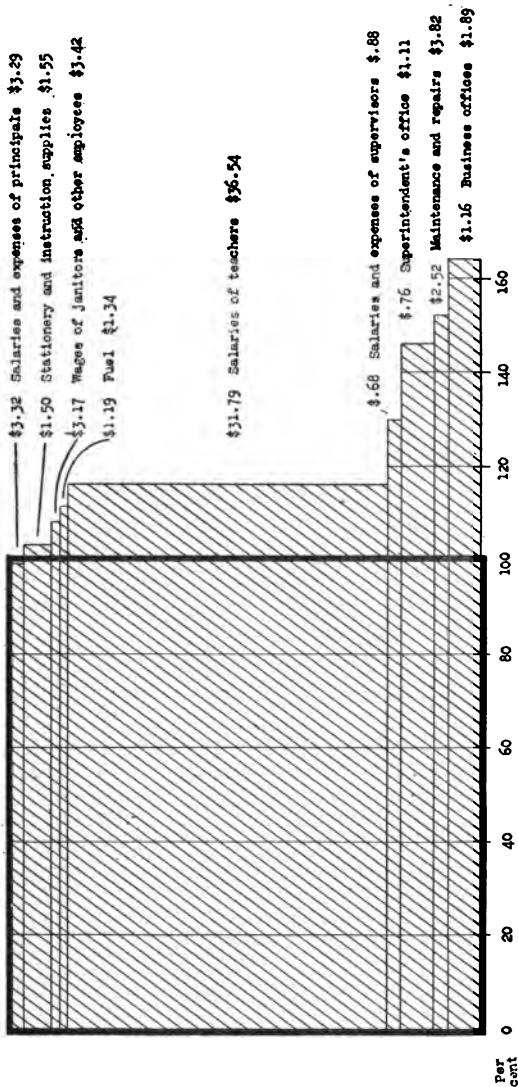
CITY.	RANK IN EXPENDITURE PER CHILD IN AVERAGE DAILY ATTENDANCE FOR								
	Office of Board and Other Business Offices.	Superintendent's Office.	Salaries and Expenses of Supervisors.	Salaries and Expenses of Principals.	Salaries of Teachers.	Stationery, Supplies, and Other Instruction Expenses.	Wages of Janitors and Other Employees.	Fuel.	Maintenance—Repairs, Replacement of Equipment, Etc.
Baltimore.....	21	15	21	16	20	19	19	16	19
Boston.....	5	2	5	11	4	8	6	10	4
Buffalo.....	19	12	10	10	10	4	8	6	3
Chicago.....	13	9	20	13	9	13	2	4	12
Cleveland.....	6	17	12	19	14	20	5	13	6
Detroit.....	16	21	9	6	12	12	3	12	14
Indianapolis.....	9	13	1	17	16	7	11	8	9
Jersey City.....	17	4	14	9	15	10	18	11	15
Kansas City.....	4	3	13	4	8	15	17	1	17
Los Angeles.....	3	11	4	1	1	6	15	19	7
Milwaukee.....	18	14	16	14	17	17	20	14	*
Minneapolis.....	14	19	11	12	5	3	9	3	5
Newark.....	10	6	8	5	7	5	13	17	18
New Orleans.....	15	20	19	20	19	*	21	21	16
Philadelphia.....	8	10	17	15	18	18	16	15	13
Pittsburgh.....	1	1	2	2	11	1	1	7	2
Portland.....	7	8	3	7	2	16	12	5	11
San Francisco.....	11	18	18	3	6	11	10	20	*
Seattle.....	12	7	15	*	*	2	4	9	10
St. Louis.....	2	5	6	8	13	9	7	18	1
Washington.....	20	16	7	18	3	14	14	2	8

<sup>1</sup> Based on figures presented in Table 7.

\* Seattle has been disregarded in ranking cities according to expenditure for salaries and expenses of principals and salaries of teachers. See notes to Tables 6 and 7.

\* New Orleans has been disregarded in ranking cities according to expenditure for stationery, supplies and other instruction expenses, and Milwaukee and San Francisco have been disregarded in ranking cities according to expenditure for maintenance. See note to Table 7.

The data of Table 6 are summarized in Tables 7 and 8, and in Diagram 7. In Table 7 Boston's expenditure per child in average daily attendance for each item of



The area of the square represents the per capita expenditure of the average city for all principal items of operation and maintenance. Expenditures for each of the nine items are indicated by the areas of the horizontal rectangles into which the square is divided, while Boston's expenditures for these same items are represented by the areas of the shaded rectangles. For any given item the ratio of Boston's expenditure to the expenditure of the average city is shown by the ratio of the shaded portion of the rectangle to the width of the square. The sum of the shaded areas represents Boston's total per capita expenditure for the nine items. Of the figures accompanying the titles, the first indicates the expenditure of the average city and the second Boston's expenditure.

Diagram 7. Boston's Expenditures Per Child in Average Daily Attendance for Nine Principal Items of Operation and Maintenance, Compared with Average Expenditures for a Group of 21 Cities.

operation and maintenance is compared with the corresponding figures for the other cities and with averages for the group of cities. The rankings of the different cities are shown in Table 8.

While the items of expenditure for which information is presented in Table 6 represent purposes for which all the cities spend school money, it is not impossible that, by reason of the differences in classification referred to above, certain items which have been included under one head in one city have been included under different heads in other cities. This is an objection which does not apply, it will be noted, to the figures for total expenditure for operation and maintenance given in preceding tables.

In order to make certain that, for Boston at least, the expenditures included under each item were the expenditures called for by the schedule of the Commissioner of Education, information relative to details of the Boston classification was secured from the Business Agent of the Boston School Committee and from his published reports. The examination of the Boston figures shows that the local authorities had been careful to meet in all respects the requirements of the schedule. The schedule had been filled out fully and with care.

For the information of persons familiar with the Boston situation, but not with the detailed requirements of the Commissioner's classification, it may be well to discuss briefly at this point some of the items included in the figures reported for Boston under the various heads of the tables. Table 6 shows that Boston's expenditure for the office of the School Committee and other business offices amounted to nearly \$184,000. This large amount includes, among other items, expenditures for the office of the Business Agent, operation and maintenance of an office building, and, what is by far the largest single item, the expenses of the Schoolhouse Commission. A Schoolhouse Commission, such as that existing in Boston, responsible for the building and maintenance of schools, is an unusual feature of a city school system. As the Boston Commission exercises functions which are in most cities carried on by the business offices of the schools, its expenses are properly included under the head "office of board and other business offices."

Boston's expenditure for the "superintendent's office" is reported as over \$107,000. This item includes, as it should, expenditures of all offices having as their function centralized educational administration and supervision. Thus, it includes not only the amount spent for maintaining the office of the Superintendent of Schools, but the expenditure for assistant superintendents, for the

department of the Director of Practice and Training, and for the enforcement of compulsory education and truancy laws. The expenses of maintaining the "certificating office," an office charged with the granting of working papers to children, a function which is somewhat more highly developed in Boston than in most cities, has been included with expenditures for the office of the Superintendent of Schools.

As it is customary in some cities to buy fuel in large quantities, carrying over considerable supplies from year to year, figures for a single year might not be significant. To remedy this difficulty expenditures for several recent years have been averaged.

The item "salaries of teachers" embraces all expenditures for teaching, including the salaries of substitute teachers, special assistant teachers and temporary teachers.

An examination of Table 7 shows that Boston spends more than the average city for most items of school expenditure. The purposes for which Boston's expenditures exceed the average are:

Office of board and other business offices.  
 Superintendent's office.  
 Salaries and expenses of supervisors.  
 Salaries of teachers.  
 Stationery, supplies and other instruction expenses.  
 Wages of janitors and other employees.  
 Fuel.  
 Maintenance — repairs, replacement of equipment, etc.

Boston's per capita expenditure is lower than the average for only one item of the nine appearing in the table — salaries and expenses of principals. In expenditure for each item Boston ranks among the cities for which information is available as follows:

PURPOSE.	Rank.
Office of board and other business offices.....	5
Superintendent's office.....	2
Salaries and expenses of supervisors.....	5
Salaries and expenses of principals.....	11
Salaries of teachers.....	4
Stationery, supplies and other instruction expenses.....	8
Wages of janitors and other employees.....	6
Fuel (average for several years).....	10
Maintenance — repairs, replacement of equipment, etc.....	4

Some of the items of expenditure shown in Tables 6, 7, and 8 seem to call for special mention.

#### SALARIES OF TEACHERS PER PUPIL IN AVERAGE DAILY ATTENDANCE.

In Boston, as in all the other cities dealt with in the comparison, salaries of teachers constitute the chief item of educational expenditure. This item consumes, for the group of cities considered together, about half the combined expenditure for operation, maintenance, and for new buildings and other improvements. Because of its preponderant effect upon the total of school expenditures, and also because of its intimate bearing upon educational results, the subject may well be considered somewhat in detail.

#### SIZE OF CLASSES.

Table 7 shows that for salaries of teachers Boston spends more per pupil in average daily attendance than does the average city. This relatively high per capita expenditure may be due either to small classes per teacher, to high salaries per teacher, or to a combination of the two conditions. Whether or not the first condition is present in Boston may be ascertained by comparing the number of children in average daily attendance per teacher employed with corresponding ratios for the other cities for which data are available. The figures for elementary schools are given in Table 9.

TABLE 9.

Average Size of Classes in Elementary Schools and Kindergartens in Boston and in 20 Other Cities. 1914.<sup>1</sup>

CITY.	Teachers Employed.	CHILDREN IN AVERAGE DAILY ATTENDANCE.		Rank in Number of Teachers Per 1,000 Children.
		Number.	Number Per Teacher.	
Baltimore.....	1,684	55,713	33.1	12
Boston.....	2,299	83,678	36.4	18
Buffalo.....	1,573	44,057	28.0	3
Cincinnati.....	1,230	36,104	29.4	5
Cleveland.....	1,800	67,293	37.4	19

<sup>1</sup> The figures for Cleveland are from the 1913-14 report of the Superintendent of Schools; those for the other 20 cities are from the annual report of the United States Commissioner of Education for 1914, Volume II., chapter II., Table 9.

TABLE 9.—*Concluded.*

CITY.	Teachers Employed.	CHILDREN IN AVERAGE DAILY ATTENDANCE.		Rank in Number of Teachers Per 1,000 Children.
		Number.	Number Per Teacher.	
Detroit.....	1,534	51,580	33.6	13
Indianapolis.....	854	26,421	30.9	9
Jersey City.....	781	30,023	38.4	21
Kansas City.....	958	28,897	30.2	7
Los Angeles.....	1,807	48,515	26.8	2
Milwaukee.....	1,210	42,515	35.1	16
Minneapolis.....	1,120	34,552	30.8	8
Newark.....	1,463	50,472	34.5	15
New Orleans.....	1,064	31,268	29.4	6
Philadelphia.....	4,764	161,509	33.9	14
Pittsburgh.....	1,799	55,723	31.0	10
Portland.....	815	21,785	26.7	1
San Francisco.....	1,081	38,485	35.6	17
Seattle.....	757	23,966	31.7	11
St. Louis.....	1,882	71,992	38.3	20
Washington.....	1,426	40,821	28.6	4
Average.....			32.4	

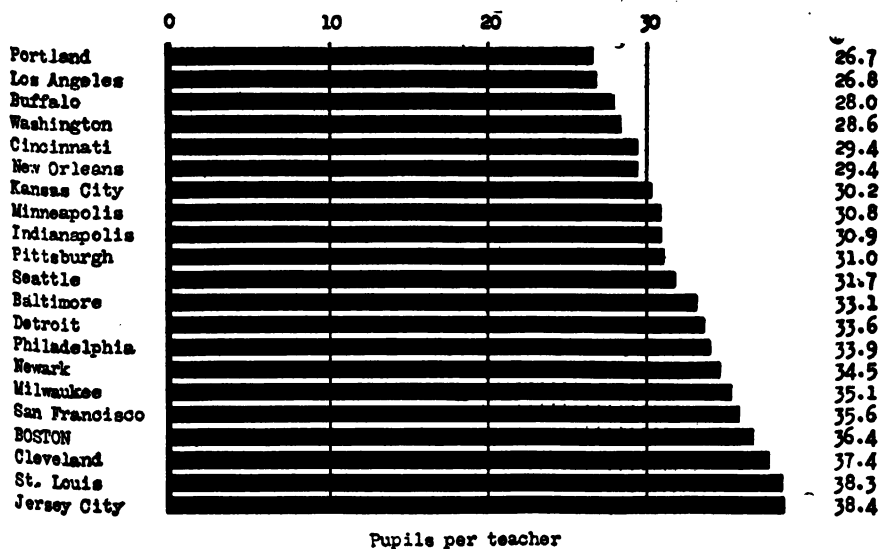


Diagram 8. Pupils in Average Daily Attendance in Elementary Schools and Kindergartens Per Teacher Employed for Boston and for 20 Other Cities.



The table shows that in Boston's elementary schools the classes are much larger than in most cities. In Boston the average number of pupils per teacher is 36.4, while the corresponding figure for the group of cities is 32.4. Among the 21 cities for which data are available Boston ranks eighteenth in the number of teachers employed per 1,000 children in average daily attendance. Of the 21 cities, but three, Cleveland, St. Louis and Jersey City, have larger classes than Boston.

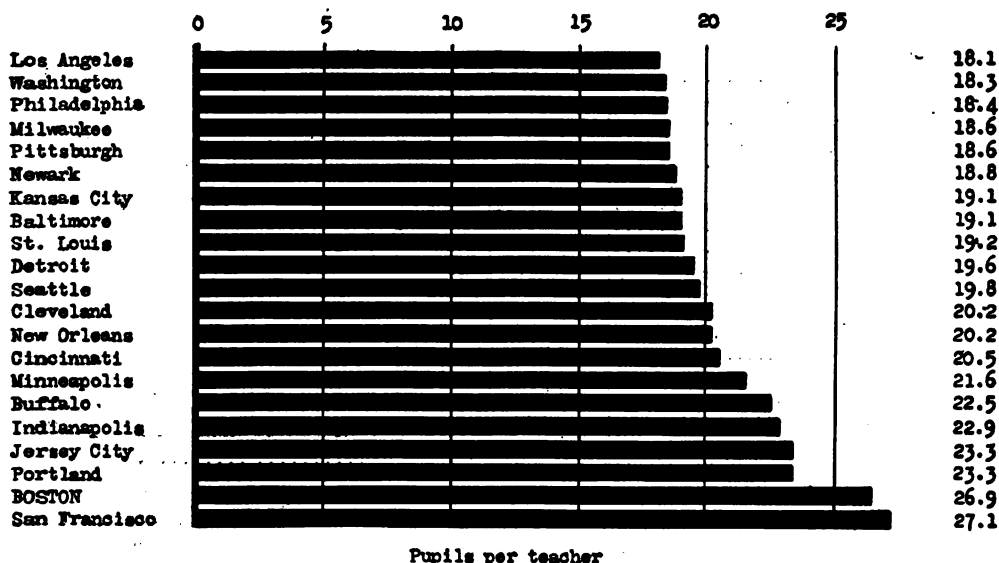
Data relative to the size of classes in secondary schools are given in Table 10.

TABLE 10.  
Average Size of Classes in Secondary Schools in Boston and in 20 Other Cities. 1914.<sup>1</sup>

CITY.	Teachers Employed.	CHILDREN IN AVERAGE DAILY ATTENDANCE.		Rank in Number of Teachers Per 1,000 Children.
		Number.	Number Per Teacher.	
Baltimore.....	\$228	4,365	19.1	8
Boston.....	505	13,570	26.9	20
Buffalo.....	163	3,673	22.5	16
Cincinnati.....	188	3,863	20.5	14
Cleveland.....	354	7,164	20.2	12
Detroit.....	285	5,594	19.6	10
Indianapolis.....	167	3,832	22.9	17
Jersey City.....	124	2,893	23.3	18
Kansas City.....	228	4,362	19.1	7
Los Angeles.....	480	8,696	18.1	1
Milwaukee.....	220	4,090	18.6	4
Minneapolis.....	288	6,207	21.6	15
Newark.....	173	3,245	18.8	6
New Orleans.....	95	1,920	20.2	13
Philadelphia.....	668	12,320	18.4	3
Pittsburgh.....	288	5,367	18.6	5
Portland.....	169	3,944	23.3	19
San Francisco.....	118	3,198	27.1	21
Seattle.....	235	4,656	19.8	11
St. Louis.....	311	5,959	19.2	9
Washington.....	316	5,770	18.3	2
Average.....			20.8	

<sup>1</sup> The figures for Cleveland are from the 1913-14 report of the Superintendent of Schools; those for the other 20 cities are from the annual report of the United States Commissioner of Education for 1914, Volume II., chapter II., Table 9.

In Boston's secondary schools, as in the elementary schools, the classes are abnormally large. The average number of pupils per teacher in secondary schools is 26.9 in Boston, while the average for the group of cities is 20.8. Of the 21 cities only one, San Francisco, reports a smaller number of teachers per 1,000 pupils than does Boston.



Pupils per teacher

Diagram 9. Pupils in Average Daily Attendance in Secondary Schools Per Teacher Employed for Boston and for 20 Other Cities.

### SALARIES PER TEACHER.

As Boston's relatively large expenditure for teachers' salaries per child in average daily attendance is clearly not due to small classes, it follows that it must be due to high salaries to individual teachers. Data relative to the annual salaries of teachers in elementary and in secondary schools are presented in Table 11.

TABLE 11.

Annual Salaries of Teachers in Boston and in 14 Other Cities.<sup>1</sup>

CITY.	MEDIAN ANNUAL SALARIES OF REGULAR TEACHERS IN <sup>2</sup>		RANK IN MEDIAN SALA- RIES OF REGULAR TEACHERS IN <sup>2</sup>	
	Elementary Schools.	Secondary Schools.	Elementary Schools.	Secondary Schools.
Baltimore.....	\$700	\$1,200	14 or 15	13
Boston.....	1,176	1,620	2	4
Chicago.....	1,175	1,600	3	5
Cincinnati.....	1,000	1,300	6, 7 or 8	11
Cleveland.....	900	1,500	9 or 10	7
Indianapolis.....	875	1,100	12	14 or 15
Milwaukee.....	876	1,260	11	12
Minneapolis.....	1,000	1,400	6, 7 or 8	8 or 9
Newark.....	1,000	1,900	6, 7 or 8	1
New Orleans.....	700	1,100	14 or 15	14 or 15
Philadelphia.....	900	1,400	9 or 10	8 or 9
Portland.....	1,050	1,350	4	10
San Francisco.....	1,200	1,680	1	3
St. Louis.....	1,032	1,520	5	6
Washington.....	750	1,800	13	2
Average of medians..	\$956	\$1,449	.....	.....

<sup>1</sup> Data for Cleveland from pay roll for 1914-15; data for other cities, for 1913-14, from "Tangible Rewards of Teaching," United States Bureau of Education.

<sup>2</sup> With teachers ranked in descending order according to size of salaries, the "median" salary is the salary received by the teacher half way down the list.

The figures appearing in the first two columns of Table 11 are medians—measures which correspond roughly to averages. In salaries paid to teachers in elementary schools Boston ranks second among the 15 cities for which data are available. The median annual salary in Boston is \$1,176, while the corresponding figure for the group of cities is \$956. But it should be noted that, in computing medians for Boston's elementary schools, substitute teachers, special assistant and temporary teachers, who in Boston are compensated at the rate of \$2 a day, have not been included. If these teachers had been considered in making up the figures presented in the table, the median for Boston would have been lower, and Boston's rank among the group of cities might also have been affected. (It seems improbable, however, that Boston's ranking would have

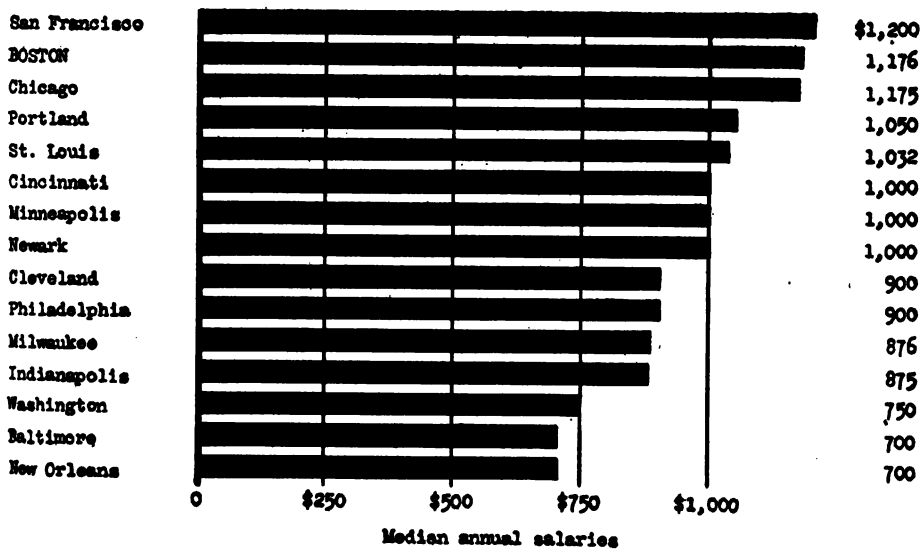


Diagram 10. Median Annual Salaries of Teachers in Elementary Schools, for Boston and for 14 Other Cities.

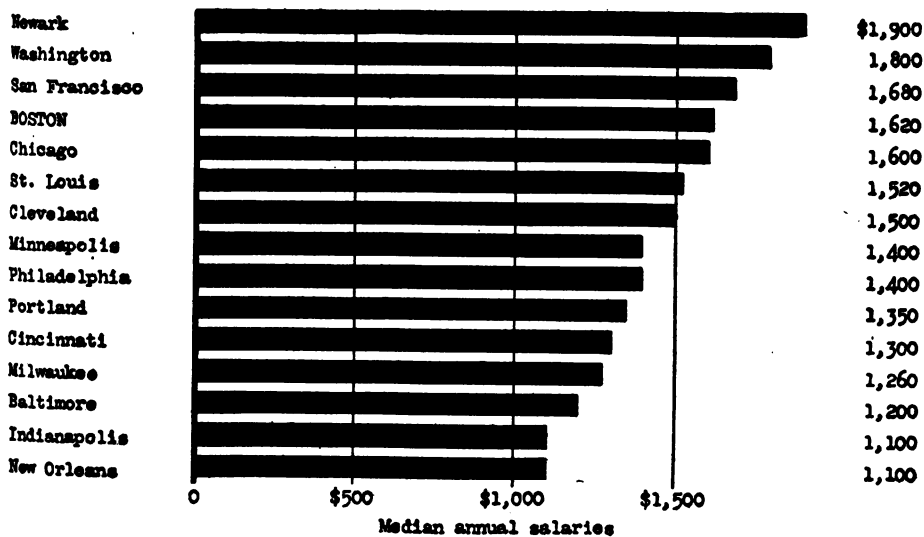


Diagram 11. Median Annual Salaries of Teachers in Secondary Schools, for Boston and for 14 Other Cities.

been seriously affected.) In annual salaries paid to teachers in secondary schools Boston ranks fourth among the 15 cities. The median salary in Boston's secondary schools is \$1,620, as compared with an average for all the cities of \$1,449.

It seems worth while to present the available information relative to teachers' salaries in somewhat greater detail. Table 12 shows, for each of the cities compared, the salaries of regular teachers in elementary schools who, if all the teachers of the city were ranked in ascending order according to annual salaries, would stand, respectively, one tenth, three tenths, five tenths, seven tenths and nine tenths of the way through the list. Similar information for secondary school teachers appears in Table 13.

TABLE 12.

Distribution of Annual Salaries of Regular Teachers in Elementary Schools in Boston and in 14 Other Cities.<sup>1</sup>

CITY.	SALARIES NOT EXCEEDING THE AMOUNTS SPECIFIED WERE EARNED BY TEACHERS BEARING TO THE AGGREGATE NUMBER EMPLOYED IN EACH CITY THE PROPORTION OF				
	10 Per Cent.	30 Per Cent.	50 Per Cent.	70 Per Cent.	90 Per Cent.
Baltimore.....	\$600	\$700	\$700	\$750	\$800
Boston.....	648	840	1,176	1,176	1,224
Chicago.....	675	975	1,175	1,175	1,200
Cincinnati.....	700	900	1,000	1,000	1,000
Cleveland.....	600	750	900	1,000	1,000
Indianapolis.....	475	625	875	925	925
Milwaukee.....	876	876	876	876	876
Minneapolis.....	750	950	1,000	1,000	1,000
Newark.....	630	780	1,000	1,100	1,300
New Orleans.....	500	600	700	750	800
Philadelphia.....	630	780	900	940	1,000
Portland.....	825	1,000	1,050	1,050	1,100
San Francisco.....	840	1,164	1,200	1,224	1,224
St. Louis.....	700	1,032	1,032	1,032	1,120
Washington.....	625	700	750	890	980
Average.....	\$672	\$845	\$956	\$993	\$1,037

<sup>1</sup> Data for Cleveland from pay roll for 1914-15; data for other cities, for 1913-14, from "Tangible Rewards of Teaching," United States Bureau of Education.

TABLE 13.

Distribution of Annual Salaries of Regular Teachers in Secondary Schools in Boston and in 14 Other Cities.<sup>1</sup>

CITY.	SALARIES NOT EXCEEDING THE AMOUNTS SPECIFIED WERE EARNED BY TEACHERS BEARING TO THE AGGREGATE NUMBER EMPLOYED IN EACH CITY THE PROPORTION OF				
	10 Per Cent.	30 Per Cent.	50 Per Cent.	70 Per Cent.	90 Per Cent.
Baltimore.....	\$780	\$1,000	\$1,200	\$1,300	\$1,800
Boston.....	1,044	1,260	1,620	1,908	3,060
Chicago.....	1,100	1,400	1,600	1,800	2,300
Cincinnati.....	900	1,100	1,300	1,800	2,300
Cleveland.....	1,100	1,300	1,500	1,800	2,000
Indianapolis.....	900	1,000	1,100	1,200	1,500
Milwaukee.....	1,260	1,260	1,260	1,260	1,380
Minneapolis.....	1,100	1,300	1,400	1,500	1,600
Newark.....	1,400	1,600	1,900	2,100	2,500
New Orleans.....	750	900	1,100	1,150	1,400
Philadelphia.....	1,000	1,250	1,400	1,600	2,500
Portland.....	1,200	1,300	1,350	1,350	1,600
San Francisco.....	1,680	1,680	1,680	2,040	2,040
St. Louis.....	1,120	1,300	1,520	1,700	2,100
Washington.....	1,300	1,600	1,800	1,800	1,800
Average.....	\$1,109	\$1,283	\$1,449	\$1,621	\$1,992

<sup>1</sup> Data for Cleveland from pay roll for 1914-15; data for other cities for 1913-14, from "Tangible Rewards of Teaching," United States Bureau of Education.

An examination of Table 12 shows that, while the salaries of those elementary school teachers whose wages are lowest are not higher in Boston than in the average city, Boston is much more liberal than the average city with respect to salaries of teachers in the upper ranges of its salary schedule. A similar condition is shown by Table 13 to prevail in secondary schools. The 10 per cent of secondary school teachers who receive least and the 30 per cent who receive least, are not as well compensated in Boston as in the average city; but, to the members of the secondary school force who receive the highest salaries, Boston pays more than any other city in the group.

## SALARIES OF PRINCIPALS.

Table 7 shows that for salaries and expenses of principals Boston spends \$3.29 per pupil, as compared with an average expenditure for the group of cities of \$3.32. While the difference between the city figure and the average is very slight, Boston stands lower in the group of cities for this item than for any other. The figure for Boston is not, however, comparable with the average for all the cities.

Boston's schools are organized on a district system by which a single elementary school principal or master has under his authority a number of schools. The principals have assistants, known as submasters, masters' assistants and assistants in charge, who are in direct control of the different schools and who have duties analagous to those performed in many cities by persons known as principals. In Tables 6 and 7 the compensation of submasters, masters' assistants and assistants in charge has been included with the compensation of teachers. If the salaries of these officers were deducted from the total salaries of teachers and added to the salaries of principals, the adjustment, in relative terms, would reduce the salaries of teachers per pupil very little, but it would have the effect of greatly increasing the expenditure per pupil for salaries and expenses of principals.

In Boston the number of submasters is in excess of 80, and their salaries range to above \$2,000. The total expenditure for salaries and expenses of principals, reported in Table 6 and used in computing the per capitas of Table 7, was \$320,187. It is clear that, if the salaries, not only of submasters, but of masters' assistants and assistants in charge, were added to this amount, a ratio based on the new total would give Boston a very high rank among the cities in expenditure per pupil for salaries of principals.

In Table 14 the salaries of elementary school principals are shown by the method employed in Tables 12 and 13 to show salaries of teachers.

TABLE 14.

Distribution of Annual Salaries of Principals in Elementary Schools in Boston and in 14 Other Cities.<sup>1</sup>

CITY.	SALARIES NOT EXCEEDING THE AMOUNTS SPECIFIED WERE EARNED BY PRINCIPALS BEARING TO THE AGGREGATE NUMBER EMPLOYED IN EACH CITY THE PROPORTION OF				
	10 Per Cent.	30 Per Cent.	50 Per Cent.	70 Per Cent.	90 Per Cent.
Baltimore.....	\$1,900	\$2,000	\$2,000	\$2,000	\$2,000
Boston.....	2,580	2,940	3,300	3,300	3,300
Chicago.....	1,800	2,600	2,800	3,100	3,100
Cincinnati.....	1,800	1,900	2,200	2,400	2,400
Cleveland.....	1,320	1,480	1,560	1,650	1,840
Indianapolis.....	950	1,100	1,300	1,500	1,800
Milwaukee.....	1,980	1,980	1,980	1,980	1,980
Minneapolis.....	1,100	1,300	1,600	1,800	2,100
Newark.....	2,000	2,400	2,600	2,900	3,000
New Orleans.....	900	1,150	1,250	1,300	1,350
Philadelphia.....	1,100	1,510	1,600	2,380	2,500
Portland.....	1,250	1,650	1,750	2,050	2,150
San Francisco.....	1,560	1,800	1,800	2,160	2,340
St. Louis.....	1,220	2,000	2,500	3,000	3,000
Washington.....	1,130	1,310	1,510	1,540	1,890
Average.....	\$1,506	\$1,808	\$1,983	\$2,204	\$2,317

<sup>1</sup> Data for Cleveland from pay roll for 1914-15; data for other cities for 1913-14, from "Tangible Rewards of Teaching," United States Bureau of Education.

An examination of the columns of the table shows that Boston provides for the salaries of persons classified as principals with greater liberality than any other city. Not only is the median salary higher in Boston than elsewhere, but this city is seen to lead in all portions of the salary schedule.

#### EXPENDITURE FOR FUEL.

Expenditure for fuel is another item of the comparison as to which Boston stands relatively low. Among the 21 cities Boston ranks tenth in expenditure for this purpose. As the Massachusetts winter climate is severe, it would naturally be supposed that expenditure for fuel would be as high in this city as in some cities for which higher rankings are given; as, for example, Washington, Buffalo, Pittsburgh, Indianapolis, and Chicago. While facts affording a complete explanation are not



available, it may be noted that in Boston the school authorities make an earnest effort to secure, in purchasing fuel, full value for what is paid. Coal is bought on a heat unit basis and samples of all lots are carefully tested. The large classes and small class rooms which prevail in Boston must also tend to keep down the amounts spent per pupil for fuel.

EXPENDITURES CLASSIFIED ACCORDING TO FUNCTION—  
ADMINISTRATION, INSTRUCTION, CARE OF SCHOOL  
PLANT.

The items of expenditure dealt with in the preceding tables may be classified according to the general type of work to which they relate. In the operation and maintenance of a school system three types of function are included: administration, instruction and the care of the physical plant. Expenditures for the office of the board and other business offices and for the superintendent's office are the expenses of administration; salaries and expenses of supervisors, salaries and expenses of principals, salaries of teachers, and expenditures for stationery, supplies and other instruction expenses are expenditures on account of instruction; and wages of janitors and other employees, expenditures for fuel, and "maintenance — repairs, replacement of equipment, etc.," are expenditures on account of the care of the school plant. A classification of the expenditures of Boston and of the other 20 cities under the broad heads of administration, instruction, and care of the school plant is of value for two reasons: (1) Such a classification will show better than the more detailed statement the emphasis which the School Committee places on the different school functions. (2) By adopting a broad scheme of classification certain sources of error in the statistical comparisons are eliminated. Thus, for Seattle it is impossible to distinguish salaries of principals from salaries of teachers, but, with both items combined under "instruction," such a distinction becomes immaterial. The figures are given in Table 15.

Boston spends more than the average city for each of the three types of activity represented by the groupings of the table. For administration Boston spends \$3 per child in average daily attendance, as compared with an average of \$1.93 for the group of cities; for instruction Boston spends \$42.26, while the average is \$37.69; and for care of plant Boston spends \$8.58, while the aver-

age city spends \$6.64. Among the 21 cities Boston stands fifth in expenditure for administration, fourth in expenditure for instruction, and fourth in expenditure for care of plant. It is believed that these rankings and

TABLE 15.

Expenditure Per Child in Average Daily Attendance for Administration, for Instruction, and for Care of School Plant in Boston and in 20 Other Cities. 1914.<sup>1</sup>

CITY.	EXPENDITURE PER CHILD IN AVERAGE DAILY ATTENDANCE FOR			RANK IN EXPENDI- TURE PER CHILD IN AVERAGE DAILY ATTENDANCE FOR		
	Administration.	Instruction.	Care of School Plant.	Administration.	Instruction.	Care of School Plant.
Baltimore.....	\$0 91	\$26 27	\$3 82	19	21	18
Boston.....	3 00	42 26	8 58	5	4	4
Buffalo.....	1 12	38 01	9 07	15	11	3
Chicago.....	1 51	36 72	7 85	13	12	7
Cleveland.....	2 38	33 12	8 09	7	17	6
Detroit.....	65	35 78	7 10	21	13	9
Indianapolis.....	1 92	33 31	6 67	10	16	11
Jersey City.....	1 51	33 47	5 55	12	15	16
Kansas City.....	3 17	38 60	5 64	3	10	15
Los Angeles.....	3 01	53 66	5 97	4	1	13
Milwaukee.....	1 10	31 75	3 35*	16	18	20
Minneapolis.....	1 04	40 43	8 47	17	6	5
Newark.....	2 08	40 39	4 65	8	7	17
New Orleans.....	96	27 04 <sup>2</sup>	3 16	18	20	21
Philadelphia.....	1 96	30 58	5 76	9	19	14
Pittsburgh.....	4 15	40 31	10 94	1	8	1
Portland.....	2 72	45 01	6 42	6	3	12
San Francisco.....	1 22	40 08	3 38 <sup>3</sup>	14	9	19
Seattle.....	1 68	47 78	7 61	11	2	8
St. Louis.....	3 49	35 76	10 54	2	14	2
Washington.....	85	41 25	6 88	20	5	10
Average.....	\$1 93	\$37 69	\$6 64	.....	.....	.....

<sup>1</sup> Based on figures presented in Table 7.

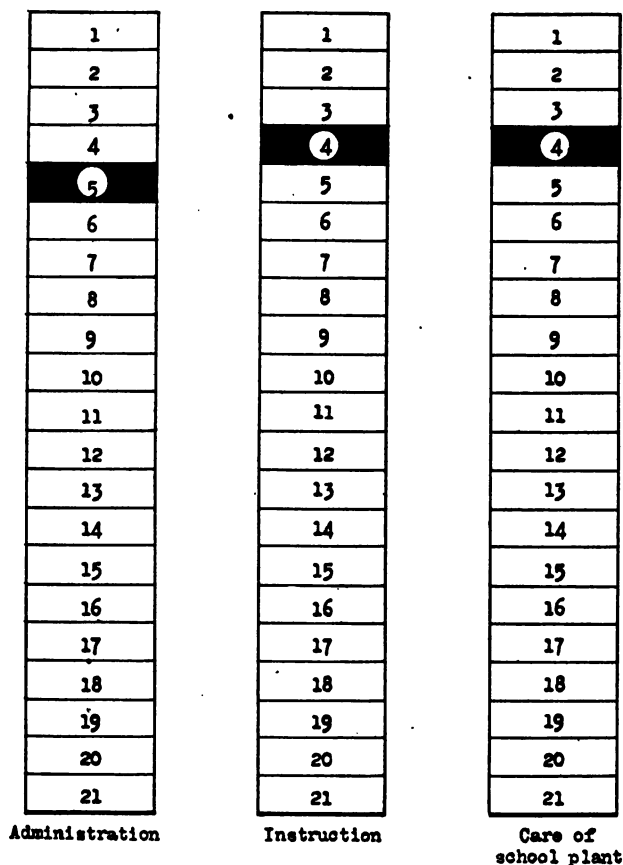
<sup>2</sup> Expenditure for "stationery, supplies, and other instruction expenses" not included. A higher figure for New Orleans could serve only to lower the relative position of Boston.

<sup>3</sup> Expenditure for "maintenance—repairs, replacement of equipment, etc.," not included.

per capitas, viewed in connection with the rankings and per capitas of preceding tables, show that in Boston expenditure is rather well balanced; that there is no general tendency to emphasize one class of activity at the expense of other activities.

### PROPORTION OF CHILDREN IN PRIVATE SCHOOLS.

The proportion of children attending private and parochial schools is a factor having a direct bearing upon school expenditures. In American cities the



The shaded rectangles represent Boston

**Diagram 12. Rank of Boston in a Group of 21 Cities in Expenditure Per Child in Average Daily Attendance for Administration, Instruction and Care of School Plant.**

public school must be prepared, and in theory is prepared, to supply instruction to all children of school age in the community. The educational work of cities is not, however, carried on exclusively by the public school — in nearly all large cities a substantial

proportion of all the children are in private and parochial schools. It is evident that where private organizations undertake the schooling of children who would otherwise be in the public schools, the authorities are relieved of a financial burden.

Table 16 shows, for the cities for which information is available, the ratio of children in private and parochial schools to children attending the public schools.

TABLE 16.

Ratio of Pupils in Private Schools to Pupils Enrolled in Public Day Schools for Boston and for 15 Other Cities. 1914.<sup>1</sup>

CITY.	Enrollment in Public Day Schools.	PUPILS IN PRIVATE SCHOOLS (LARGELY ESTIMATED).	
		Number.	Number per 1,000 Pupils in Public Day Schools.
Baltimore.....	77,219	15,000	194
Boston.....	119,105	20,743	174
Buffalo.....	63,613	27,086	426
Chicago.....	355,668	114,000	321
Cincinnati.....	46,250	18,807	407
Cleveland.....	90,413	32,106	355
Detroit.....	77,024	26,864	349
Indianapolis.....	38,372	5,644	147
Kansas City.....	43,282	5,005	116
Minneapolis.....	49,167	4,500	92
Philadelphia.....	231,385	70,112	303
Pittsburgh.....	79,253	25,605	323
Portland.....	33,142	5,000	151
San Francisco.....	50,686	10,025	198
Seattle.....	35,527	3,476	98
St. Louis.....	97,858	30,000	307
Average.....			248

<sup>1</sup> Data from the annual report of the United States Commissioner of Education for 1914, Volume II., chapter II., Table 10.

As is indicated in the column headings, the figures showing the number of children in private schools are largely estimated. The figures are, therefore, to be accepted with a certain amount of caution. But, even when all necessary allowance has been made for possible inaccuracies, it is clear that there is a wide varia-

tion as between the cities in the proportion of children in private schools. The ratio of such children to children attending the public schools ranges from 426 per 1,000 in Buffalo to 92 per 1,000 in Minneapolis. In Boston but 174 children are reported in private or parochial schools for every 1,000 in the public schools. As the average for the group of cities is 248 this figure is low. Among the 16 cities for which information is available Boston ranks eleventh in the proportion of children in private schools.

It is clear that, if in Boston the proportion of children in private schools had approached more nearly the average for the group of cities, the city could have maintained its schools, at the prevailing rate per pupil, on a total expenditure materially lower than that reported. This would have resulted in a lower expenditure per inhabitant and per \$1,000 of wealth.

## CHAPTER VIII.—THE CONSTRUCTION OF SCHOOL BUILDINGS.

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It is a difficult matter to make an accurate comparison between the costs of two or more school buildings, unless they are constructed on precisely the same plan and built on similar sites. As differences between school buildings increase, the difficulty of comparing their costs becomes rapidly greater. The reason for this is that there is no single satisfactory unit of comparison.

### COST PER PUPIL.

Perhaps the commonest unit for comparing the schoolhouse costs is the cost per pupil. Thus, if one schoolhouse costs \$60,000 and another costs \$80,000, and each building has accommodations for 400 pupils, it is clear that the cost per pupil in the first building is \$150, and in the second building, \$200. It may well be, however, that the additional cost in the more expensive building is caused by the improved accommodations which that building furnishes. Both buildings may have 10 class rooms, but the more expensive building may have in addition an auditorium, a gymnasium, a boys' playroom, a girls' playroom and a nurse's room. The illustration makes it clear that the cost per pupil is not a satisfactory unit of comparison, unless it be further explained by specifying the accommodations provided for each pupil.

### COST PER CLASS ROOM.

The class room is often taken as a unit of comparison, but as such it has all the shortcomings mentioned in the case of the unit based on the cost per pupil. In addition, the class rooms may be small, accommodating only about 35 pupils each, or they may be large and accommodate about 50 pupils each. Moreover, some cities accommodate more pupils than do others in class rooms of the same dimensions.

### COST PER CUBIC FOOT.

Among school architects the cost per cubic foot is often taken as the unit for comparative cost data.

In general the number of cubic feet in a school building is arrived at by multiplying the ground area of the building by the distance from the lowest part of the basement floor to the average height of the roof. There are, however, many variations in the method of computing the number of cubic feet, and there is no uniform practice among school architects in different cities. For this reason the cost per cubic foot is not an entirely satisfactory unit, except when used for buildings of similar construction and computed by precisely uniform methods.

#### ADMINISTRATION OF SCHOOLHOUSE CONSTRUCTION.

Departments of education have different administrative arrangements for taking care of schoolhouse construction. In many cities architects are chosen for each building on the basis of a competition which any architect may enter. This method is seldom followed in the larger cities because it has been found to result in a most undesirable diversity of plans and equipment. A more satisfactory plan is for a city to select a reliable firm of competent architects and to make a contract with them covering a term of years and by which the firm prepares plans for all schoolhouses for a stipulated percentage of the value of the construction undertaken. This method is at present successfully employed in many large cities. Many other cities have found it still more satisfactory to employ a schoolhouse architect as a regular member of the permanent staff of the Department of Education and to employ as assistants as many engineers, draughtsmen and inspectors as the building work of the school department may necessitate.

The City of Boston employs no one of these methods, but has instead a device which is unique among American cities. The Board of Education does not construct its school buildings either through its own force or through employed architects. Instead there is a Schoolhouse Commission, consisting of three members appointed by the Mayor, to take charge of all repairs and replacements in old buildings and to purchase sites and construct all new school buildings. The School Board indicates the new accommodations which it desires to secure, and, if the money is available, the Schoolhouse Commission secures plans for the desired buildings and supervises their construction. These plans are made by private architects employed by the commission, who receive for their work

six per cent of the cost of the building itself and two and two fifths per cent of the cost of the heating, electrical, and some other similar equipment which is designated as domestic engineering. Both the commission and the architects employ inspectors of construction.

#### COST OF SCHOOL BUILDINGS IN BOSTON.

The foregoing explanation concerning computations of building cost and methods followed in different cities in the construction of schools has been made in order to make clearer some of the methods followed in the present report in endeavoring to arrive at a just estimate of the degree of efficiency and economy maintaining in the planning and construction of Boston's schoolhouses. In the endeavor to find out how this work as done in Boston compares with that done by other progressive cities, data have been secured covering recent operations in schoolhouse construction in Cleveland, Detroit, Newark and St. Louis. These data have been compared with each other and with similar data for Boston schools. The data for the four other cities were secured through the courteous coöperation of the architectural and educational authorities of those municipalities. Each city has supplied data for from seven to eleven recently constructed elementary school buildings of first-class fireproof construction. The data supplied and used in this report are the following:

1. Name of building.
2. Date of construction.
3. Number of regular class rooms.
4. Cubic feet of building as computed by architect.
5. Number of square feet of pure class room space.
6. List of the special rooms not included in the computation of pure class room space.
7. The cost of building without lot or furniture, but including the cost of the plans, specifications and inspection service.
8. The cost of plans, specifications and inspection service.
9. A statement of the practice of the city in the matter of administering schoolhouse construction.

In the case of Boston the corresponding data have been secured through visitation of school buildings, from the records of the Schoolhouse Commission, and from the data on file in the office of the Business Agent of the School Board. Tables 1 and 2 present the data for the Boston buildings.



TABLE 1.  
Cost Data for Nine First-class Fireproof Elementary School Buildings in Boston.

School.	Date.	Class Rooms.	[Special Rooms.	Pupils.	Cubic Feet in Building.	Square Feet in Class Rooms.	Cost of Building.	Plans, Specifications and Inspection.	Cost Per Room.	Cost Per Pupil.	Cost Per Cubic Foot.
Patrick Collins.....	1907	17	5	753	725,561	13,560	\$194,330	\$17,666	\$11,431	\$258	\$0 268
Edward Everett.....	1909	14	7	512	516,678	9,210	118,267	10,752	8,448	231	229
Nathan Hale.....	1909	12	4	400	333,379	7,200	73,955	6,723	6,163	185	222
John Cheverus.....	1909	16	7	587	535,474	10,560	112,977	10,271	7,061	192	211
Peter Faneuil.....	1910	17	4	633	431,886	11,400	118,888	10,808	6,993	188	275
William L. Garrison.....	1910	10	2	383	275,640	6,900	72,766	6,615	7,277	190	264
Samuel Adams.....	1910	22	7	757	608,195	13,620	153,194	14,381	7,191	209	260
Lafayette.....	1911	8	4	293	220,269	5,280	69,084	6,280	8,636	236	313
Abraham Lincoln.....	1911	40	8	1,517	1,158,533	27,300	308,097	28,009	7,702	203	266

TABLE 2.  
Cost Data for Ten Second-class Non-fireproof Elementary School Buildings in Boston.

SCHOOL.	Date.	Class Rooms.	Special Rooms.	Pupils.	Cubic Feet in Building.	Square Feet in Class Rooms.	Cost of Building.	Plans, Specifications and Inspection.	Cost Per Class Room.	Cost Per Pupl.	Cost Per Cubic Foot.
John Winthrop.....	1911.	16	8	603	601,047	10,860	\$121,741	\$11,067	\$7,609	\$202	\$0 203
Edmund Tleston.....	1911	16	8	603	688,288	10,860	145,396	13,218	9,087	241	211
Ulysses S. Grant.....	1912	18	7	685	592,171	12,330	128,160	11,651	7,120	187	216
Lewis.....	1912	17	7	648	642,178	11,670	118,899	10,809	6,994	183	185
Ellen Richards.....	1913	8	4	305	229,258	5,490	49,049	4,459	6,131	161	214
Mozart.....	1913	4	4	123	108,542	2,220	25,180	2,289	6,295	205	232
Martha Baker.....	1913	4	4	133	127,650	2,400	27,014	2,456	6,754	203	212
John Williams.....	1913	12	5	412	303,295	7,425	76,052	6,914	6,338	185	251
John Philbrick.....	1913	8	5	277	305,209	4,995	65,630	5,966	8,204	237	215
Nightingale.....	1914	10	2	326	272,303	5,865	66,402	6,037	6,640	204	244

They cover nine fireproof and ten non-fireproof elementary school buildings of recent construction. The number of special rooms includes such rooms as auditoriums, gymnasiums, playrooms, nurse's room, teachers rooms, libraries, and so forth. It does not include the principal's office and reception room, storerooms, book rooms, janitors' rooms, or such portions of the building as toilets, halls, wardrobes and stairways. The endeavor has been to list as special rooms those rooms, other than class rooms, which possess a direct educational value for the children, and to omit parts of the building which are necessary for administrative purposes, but which must be included in every modern school building. The rooms counted as special rooms are listed in List A and List B.

Under the new requirements of the building law, Boston will construct only fireproof buildings in the future. During the past few years, however, the School-house Commission has built many small, expensive, non-fireproof schools of second-class construction.

**LIST A. SPECIAL ROOMS IN NINE FIRST-CLASS FIREPROOF ELEMENTARY SCHOOL BUILDINGS IN BOSTON.**

Patrick Collins.....	Assembly hall, 2 playrooms, domestic science, manual training — total 5.
Edward Everett.....	Auditorium, 2 playrooms, nurse's room, cooking room, manual training, teacher room — total 7.
Nathan Hale.....	Two playrooms, nurse's room, teacher room — total 4.
John Cheverus.....	Assembly hall, 2 playrooms, nurse's room, cooking room, manual training, teacher room — total 7.
Peter Faneuil.....	Two playrooms, manual training, teacher room — total 4.
William L. Garrison....	Nurse's room, teacher room — total 2.
Samuel Adams.....	Assembly hall, 2 playrooms, nurse's room, cooking room, manual training, teacher room — total 7.
Lafayette.....	Two playrooms, nurse's room, teacher room — total 4.
Abraham Lincoln.....	Assembly hall, 2 playrooms, nurse's room, cooking room, manual training, 2 teacher rooms — total 8.

## LIST B. SPECIAL ROOMS IN TEN SECOND-CLASS NON-FIREPROOF ELEMENTARY SCHOOL BUILDINGS IN BOSTON.

John Winthrop.....	Assembly hall, 2 playrooms, nurse's room, rest room, cooking room, manual training, teacher room — total 8.
Edmund Tileston.....	Assembly hall, 2 playrooms, nurse's room, cooking room, manual training, 2 teacher rooms — total 8.
Ulysses S. Grant.....	Assembly hall, 2 playrooms, nurse's room, cooking room, manual training, teacher room — total 7.
Lewis.....	Assembly hall, 2 playrooms, nurse's room, cooking room, manual training, teacher room — total 7.
Ellen Richards.....	Two playrooms, nurse's room, teacher room — total 4.
Mozart.....	Two playrooms, nurse's room, teacher room — total 4.
Martha Baker.....	Two playrooms, nurse's room, teacher room — total 4.
John Williams.....	Two playrooms, nurse's room, 2 teacher rooms — total 5.
John Philbrick.....	Assembly hall, 2 playrooms, nurse's room, teacher room — total 5.
Nightingale.....	Nurse's room, teacher room — total 2.

The number of pupils in each building, as shown by the table, is not the number of fixed seats in the class rooms, but rather a number arrived at by allowing 18 square feet of pure class room space for each pupil. The cost of the building has been arrived at by taking the Schoolhouse Commission's figure covering the entire construction expense and increasing it by 10 per cent in order to cover the fees received by the architects and those administrative expenses of the Schoolhouse Commission which may properly be charged against the construction of new buildings.

It is believed that this figure of 10 per cent is a most conservative one. The buildings entering into the comparison were constructed in the years 1907 to 1914. During the major part of the period the commission has been paying its architects 6 per cent on the cost of build-

ing construction and 3 per cent on the cost of domestic engineering. Meanwhile the expenses of the commission, given in its annual reports as expenses pertaining to administration and incidentals, have amounted to 13.9 per cent of the expenditure on repairs and replacements, and 3.9 per cent of the expenditure for new sites and for erecting new buildings. Since the commission has been charging the salaries of its members entirely against the account for repairs and replacements, whereas much of its work has been directed toward the erection of new buildings, it is clear that the figure for administrative expenses in connection with new construction is too low. During part of the period the architects employed by the commission have been receiving 5 per cent for their work on the building itself, and 2.5 per cent for domestic engineering. During the rest of the period they have received 6 per cent on the building and 3 per cent on the engineering. A careful computation indicates that the average commission paid to the architects on all these buildings amounts to about 5.4 per cent. If the administrative expense of the commission in the matter of new construction is as much as 4.6 per cent, it is clear that Boston is paying for architectural and inspection service no less than 10 per cent on the cost of each new building. The figures cited indicate that this is a most conservative estimate.

In all matters, except this one of arriving at the expense for plans, specifications and inspection, precisely the same procedure has been followed in compiling the comparative data for the four other cities as has been followed in the case of Boston buildings.

#### COST DATA FOR CLEVELAND, DETROIT, NEWARK AND ST. LOUIS.

Tables 3, 4, 5 and 6 present data for recently constructed fireproof elementary school buildings in Cleveland, Detroit, Newark and St. Louis. Lists C, D, E and F give the special rooms enumerated for each one of the buildings in each one of the cities.

TABLE 3.  
Cost Data for Eleven Fireproof Elementary School Buildings in Cleveland.

School.	Date.	Class Rooms.	Special Rooms.	Pupils.	Cubic Feet in Building.	Square Feet in Class Rooms.	Cost of Building.	Plans, Specifications and Inspection.	Cost Per Class Room.	Cost Per Cubic Pupil.	Cost Per Cubic Foot.
Eagle.....	1911	21	20	933	817,130	16,800	\$144,492	\$5,000	\$6,881	\$155	\$0 177
Mt. Pleasant.....	1912	12	7	533	552,000	9,600	82,228	2,820	6,852	154	150
Dawning.....	1912	12	8	533	552,000	9,600	87,293	3,000	7,274	104	158
Chesterfield.....	1913	12	8	533	561,360	9,600	100,011	3,425	8,334	188	180
Kennard.....	1913	23	14	1,022	954,000	18,400	153,430	5,250	6,671	150	161
East Boulevard.....	1913	19	9	844	761,000	15,200	136,430	4,660	7,181	162	179
Addison.....	1913	17	12	756	690,000	13,600	131,585	4,500	7,740	174	191
Empire.....	1914	21	12	933	1,063,000	16,800	179,447	6,150	8,545	192	168
Rawlings.....	1914	21	14	933	1,222,000	16,800	194,280	6,650	9,251	208	159
Murray Hill.....	1915	28	24	1,244	1,270,000	22,400	235,800	8,000	8,421	190	185
Almira.....	1915	25	14	1,111	1,160,000	20,000	206,540	7,050	8,262	186	178

TABLE 4.  
Cost Data for Ten Fireproof Elementary School Buildings in Detroit.

School.	Date.	Class Rooms.	Special Rooms.	Pupils.	Cubic Feet in Building.	Square Feet in Class Rooms.	Cost of Building.	Plans, Specifications and Inspection.	Cost Per Class Room.	Cost Per Pupil.	Cost Per Cubic Foot.
Breitmeyer.....	1915	20	7	765	642,770	13,762	\$106,846	\$5,087	\$5,342	\$140	\$0 166
Marxhausen.....	1915	20	7	813	614,065	14,629	87,269	4,155	4,363	107	142
Ellis.....	1915	20	5	812	638,700	14,620	95,207	4,533	4,760	117	149
Joyce.....	1915	20	7	812	640,000	14,620	97,402	4,638	4,870	120	152
Lingemann.....	1915	20	7	746	647,070	13,436	101,783	4,846	5,089	136	157
Thirkell.....	1915	20	7	812	636,000	14,620	92,845	4,421	4,642	114	146
Albert Hely.....	1915	20	7	785	616,523	14,135	93,282	4,442	4,664	119	151
Hattie M. Carstens.....	1915	20	7	827	624,124	14,893	104,389	4,970	5,219	126	167
Goldberg.....	1915	20	13	757	644,150	13,623	110,303	5,252	5,515	146	171
Theodore Harns.....	1916	20	7	815	672,820	14,664	105,046	5,002	5,252	128	156

TABLE 5.  
Cost Data for Nine Fireproof Elementary School Buildings in Newark.

School.	Date.	Class Rooms.	Special Rooms.	Pupils.	Cubic Feet in Building.	Square Feet in Class Rooms.	Cost of Building.	Plans, Specifications and Inspection.	Cost Per Class Room.	Cost Per Pupil.	Cost Per Cubic Foot.
Lafayette.....	1910 } 1914 }	43	10	1,935	1,200,200	34,830	\$277,943	\$13,235	\$6,464	\$144	\$0 231
Ridge.....	1911	18	7	720	682,600	12,960	121,333	5,778	6,741	168	177
Webster.....	1911	16	8	720	687,000	12,960	129,003	6,143	8,063	180	187
West Side.....	1911 } 1914 }	39	6	1,665	1,072,000	29,970	209,511	9,977	5,372	126	195
Montgomery.....	1911	25	6	1,035	769,000	18,630	148,022	7,049	5,921	143	192
Teahine.....	1911	16	5	630	592,700	11,340	110,610	5,287	6,913	175	187
Cleveland.....	1912	39	5	1,665	1,164,000	29,970	253,283	12,061	6,494	152	217
Miller.....	1913	18	3	810	743,000	14,580	138,600	6,600	7,700	171	187
Oliver.....	1915	22	5	903	710,000	16,254	134,311	6,396	6,105	149	189



TABLE 6.  
Cost Data for Seven Fireproof Elementary School Buildings in St. Louis.

School.	Date.	Class Rooms.	Special Rooms.	Pupils.	Cubic Feet in Building.	Square Feet in Class Rooms.	Cost of Building.	Plans, Specifications and Inspection.	Cost Per Class Room.	Cost Per Pupil.	Cost Per Cubic Foot.
Madison.....	1910	26	10.	1,127	949,000	20,280	\$200,798	.....	\$7,723	\$178	\$0 212
Harney Heights.....	1911	20	10	867	1,072,000	15,600	197,712	\$5,691	9,886	228	185
Bryan Hill.....	1911	22	8	953	1,092,000	17,160	189,768	7,993	8,626	199	172
Delaney.....	1911	10	3	433	427,000	7,800	100,468	50,014	10,047	232	257
William Glasgow.....	1912	27	7	1,170	1,251,000	21,060	224,631	9,089	8,320	192	18
Laclede.....	1914	24	6	1,040	1,113,000	18,720	200,539	8,316	8,356	193	1875
Bryan-Mullanphy.....	1915	22	9	953	1,310,500	17,160	229,182	9,175	10,417	240	175

**LIST C. SPECIAL ROOMS IN ELEVEN ELEMENTARY SCHOOL BUILDINGS IN CLEVELAND.**

Eagle.....	Auditorium, gymnasium, 3 playrooms, shower, dispensary, 2 rest rooms, open-air cot room, library, domestic science, housekeeping suite (4 rooms), manual training, teacher lunch, kitchenette, elevator — total 20.
Mt. Pleasant.....	Auditorium, gymnasium, 2 playrooms, dispensary, 2 rest rooms — total 7.
Dawning.....	Auditorium, gymnasium, 2 playrooms, shower, dispensary, 2 rest rooms — total 8.
Chesterfield.....	Auditorium, gymnasium, 2 playrooms, shower, dispensary, 2 rest rooms — total 8.
Kennard.....	Auditorium, gymnasium, natatorium, 2 locker and shower rooms, dispensary, 2 rest rooms, room for blind, domestic science, sewing room, manual training, teacher lunch, kitchenette — total 14.
East Boulevard.....	Auditorium, 2 playrooms, dispensary, 2 rest rooms, manual training, teacher lunch, kitchenette — total 9.
Addison.....	Auditorium, gymnasium, handball court, dispensary, 2 rest rooms, teacher lunch, kitchenette, 4 unassigned — total 12.
Empire.....	Auditorium, 2 gymnasiums, natatorium, dispensary, 2 rest rooms, domestic science, manual training, teacher lunch, kitchenette, unassigned — total 12.
Rawlings.....	Auditorium, 2 gymnasiums, natatorium, 2 locker and shower rooms, dispensary, 2 rest rooms, domestic science, manual training, teacher lunch, kitchenette, unassigned — total 14.
Murray Hill.....	Two gymnasiums, natatorium, 2 locker and shower rooms, dispensary, sun room, warming room, 3 rest rooms, domestic science, 2 kitchens, lunch room, housekeeping suite (5 rooms), manual training, filter room, teacher lunch, elevator — total 24.
Almira.....	Auditorium, 2 gymnasiums, natatorium, 2 locker and shower rooms, dispensary, 2 rest rooms, domestic science, manual training, filter room, teacher lunch, kitchenette — total 14.

**LIST D. SPECIAL ROOMS IN TEN ELEMENTARY SCHOOL  
BUILDINGS IN DETROIT.**

Breitmeyer.....	Playroom, clinic, rest room, waiting room, library, domestic science, manual training, recitation — total 7.
Marxhausen.....	Playroom, clinic, rest room, library, domestic science, manual training, recitation — total 7.
Ellis.....	Playroom, library, domestic science, manual training, recitation — total 5.
Joyce.....	Playroom, clinic, rest room, library, domestic science, manual training, recitation — total 7.
Lingemann.....	Playroom, clinic, rest room, library, domestic science, manual training, recitation — total 7.
Thirkell.....	Playroom, clinic, rest room, library, domestic science, manual training, recitation — total 7.
Albert Hely.....	Playroom, clinic, rest room, library, domestic science, manual training, recitation — total 7.
Hattie M. Carstens.....	Playroom, clinic, library, domestic science, manual training, recitation, teacher room — total 7.
Goldberg.....	Playroom, 2 showers, clinic, waiting room, 2 cot rooms, library, dining room, kitchen, domestic science, manual training, recitation — total 13.
Theodore Harms.....	Playroom, clinic, library, domestic science, manual training, recitation, teacher room — total 7.

## LIST E. SPECIAL ROOMS IN NINE ELEMENTARY SCHOOL BUILDINGS IN NEWARK.

Lafayette.....	Auditorium, gymnasium, physical instructor's room, doctor's room and waiting room, library, 5 teacher rooms — total 10.
Ridge.....	Auditorium, gymnasium, physical instructor's room, doctor's room and waiting room, library, 2 teacher rooms — total 7.
Webster.....	Auditorium, gymnasium, physical instructor's room, doctor's room and waiting room, library, 3 teacher rooms — total 8.
West Side.....	Auditorium, doctor's room and waiting room, 3 teacher rooms — total 6.
Montgomery.....	Auditorium, doctor's room and waiting room, library, 3 teacher rooms — total 6.
Teshine.....	Assembly room, doctor's room and waiting room, 2 teacher rooms — total 5.
Cleveland.....	Auditorium, gymnasium, physical instructor's room, doctor's room and waiting room, library — total 5.
Miller.....	Auditorium, gymnasium, physical instructor's room — total 3.
Oliver.....	Auditorium, physical instructor's room, doctor's room and waiting room, 2 teacher rooms — total 5.

**LIST F. SPECIAL ROOMS IN SEVEN ELEMENTARY SCHOOL BUILDINGS IN ST. LOUIS.**

Madison.....	2 gymnasiums, 2 playrooms, 2 shower rooms, medical inspection and rest room, kindergarten workrooms, 2 teacher rooms—total 10.
Harney Heights.....	Assembly room, 2 gymnasiums, 2 playrooms, 2 shower rooms, medical inspection and rest room, kindergarten workrooms, teacher room—total 10.
Bryan Hill.....	2 gymnasiums or assembly rooms, 2 playrooms, shower room, medical inspection and rest room, kindergarten workrooms, teacher room—total 8.
Delaney.....	2 playrooms, teacher room—total 3.
William Glasgow.....	2 gymnasiums or assembly rooms, 2 playrooms, 2 shower rooms, medical inspection and rest room—total 7.
Laclede.....	2 play or assembly rooms, 2 shower rooms, medical inspection and rest room, kindergarten workrooms—total 6.
Bryan-Mullanphy.....	Assembly hall, 2 gymnasiums, 2 shower rooms, medical inspection, domestic science, manual training, kindergarten workrooms—total 9.

**COMPARATIVE COSTS IN THE FIVE CITIES.**

Table 7 is a summary table comparing the costs of the six groups of school buildings in the five cities.

**TABLE 7.**

**Costs Data for 56 Elementary School Buildings in Five Cities.**

CITY.	Number of Buildings.	Average Cost Per Class Room.	Average Cost Per Cubic Foot.	Average Cost Per Pupil.	Special Rooms for 20 Class Rooms.	Average Cost Per Room, Special and Class.	Per Cent for Plans, Specifications and Inspection.
Detroit. Fireproof.....	10	\$4,972	\$0 156	\$125	7.4	\$3,629	4.76
Newark. Fireproof.....	9	6,641	196	156	4.7	5,232	4.76
Cleveland. Fireproof.....	11	7,765	171	175	13.5	4,678	3.42
St. Louis. Fireproof.....	7	9,054	193	209	7.0	6,584	3.96
Boston. Non-fireproof.....	10	7,117	218	201	9.6	4,931	9.10
Boston. Fireproof.....	9	7,878	256	210	6.2	6,012	9.10

The contrasts revealed by it are interesting and significant. The average cost per class room ranges from less than \$5,000 in Detroit to more than \$9,000 in St. Louis; the cost per cubic foot from a little over 15 cents in Detroit to more than 25 cents in Boston; the average cost per pupil from \$125 in Detroit to \$210 in Boston.

All the buildings have special rooms, but they vary greatly in number. In Newark there are on the average 4.7 special rooms for each 20 regular class rooms, while in Cleveland there are 13.5 special rooms for each 20 regular class rooms. The Boston figures lie between these two extremes. These figures for the special rooms are most significant, not only from a financial point of view but also from an educational one. The child attending school in the typical Cleveland building may be said to have his share of a room and two thirds, whereas the Boston child has his share of a room and a third, and the one in Newark has a share in less than a room and a quarter. Moreover, these figures fail to give an adequate idea of the educational importance of the situation, for where special rooms are found in ample numbers, as in Cleveland, they include such accommodations as auditoriums, gymnasiums, swimming pools, lunch rooms and libraries. On the other hand, where special rooms exist in small numbers, they are apt to be limited to such accommodations as two basement playrooms, a teachers' rest room and a recitation room.

Moreover, the special rooms vary enormously in size, in cost and in value. For example, the auditorium may be merely a large room with a high platform at one end and with the view somewhat seriously obstructed by supporting columns. It may, on the other hand, be of the most modern construction with the floor slanted like that of the theater, with the view entirely unobstructed, and the stage equipped with waiting rooms, footlights and scenery so that it may be effectively used for dramatic presentations.

If we balance off the large special rooms against the small rooms and the expensive rooms against the cheaper ones, we will do slight injustice to any city by combining all the special rooms and all the class rooms and computing a new figure showing the cost per room, including special and regular rooms together. This figure has been computed for all cities and appears in the sixth column of Table 7.

In the last column of the same table are figures showing the proportion which the expense for plans, specifications and inspection bears in each city to the entire cost of the school buildings. The reason why the figures for Boston is 9.1 rather than 10 is that the cost for these services has been computed as 10 per cent of the construction costs. The two figures have, then, been added to represent the whole cost of the completed building and the amount assigned for architects and inspectors services has then been computed as a percentage of this new base. These figures show the cost of plans, specifications and inspection and have a range from 3.42 per cent of the building cost in Cleveland to 9.1 per cent in Boston.

#### THE RANK OF THE CITIES IN SCHOOLHOUSE COST.

Table 8 is a summary table showing how the six groups of school buildings rank in the matter of each one of the six items of cost which have been compared. Thus, the first column shows that Detroit, which is given the rank of one, has the lowest average cost per class room.

TABLE 8.

Rank of Each of Six Groups of Elementary School Buildings in Five Cities in Six Items of Comparative Cost Data.

CITY.	Average Cost Per Class Room.	Average Cost Per Cubic Foot.	Average Cost Per Pupil.	Special Rooms for Twenty Class Rooms.	Average Cost Per Room, Special and Class.	Per Cent for Plans, Specifications and Inspection.	Total of Ranks.
Detroit.....	1	1	1	3	1	3	10
Cleveland.....	4	2	3	1	2	1	13
Newark.....	2	4	2	6	4	4	22
Boston.							
Non-fireproof.....	3	5	4	2	3	6	23
St. Louis.....	6	3	5	4	6	2	26
Boston.							
Fireproof.....	5	6	6	5	5	5	32

The same city has the lowest average cost per cubic foot and per pupil. It is again found in the first rank in the average cost per room when we lump special and

class rooms together. It ranks in third place in the proportion of special rooms found in its school buildings and in the expense for plans, specifications and inspection. If we add all these ranks we have a total of 10, which appears in the last column of the table. By similar methods the ranks for all the six groups of buildings for the five cities have been ascertained and their totals have been noted. These totals indicate that, on the basis of these six sources of cost comparisons, the Detroit schools are the least expensive of those entering into this comparison and the fireproof schools of Boston are the most expensive. Boston ranks in either the last place or in next to the last place in every one of the comparisons.

In the matter of non-fireproof buildings the figures show that Boston does not spend on the average quite so much per unit of accommodation as St. Louis does for fireproof buildings. If we make the comparison merely with the other cities it is clear that Boston has been spending more for second-class non-fireproof buildings than Cleveland, Detroit and Newark for first-class fireproof buildings. Moreover, it must be remembered in all these comparisons that nearly all the figures for other cities pertain to schools erected more recently than the Boston schools for which it has been possible to obtain data. Since the cost of construction has been steadily rising during the past few years, this is another factor which should be extremely favorable to Boston in the matter of these comparisons.

#### SCHOOL COSTS AND SCHOOL VALUES.

In the opinion of the committee, Boston is not receiving adequate educational returns for its investments in new school buildings. The city pays more and the child receives less than in other progressive cities. In some measure this has been true for several years past, and it appears that, under the present policies of the Schoolhouse Commission, conditions are becoming comparatively worse rather than better.

The Schoolhouse Department states in its latest report, for 1915, that it offers the new Wells District School as a type of the new fireproof buildings now being constructed. It states that the cost of this building will amount to \$159.50 per child. This figure does not include the costs of plans, specifications and



inspection which have been shown to amount to approximately 10 per cent of the construction cost. If we add \$15.95 to cover these items, we have a cost per pupil of \$175.45.

But this cost is figured on the basis of 15 square feet of class room area for each pupil, whereas the costs for all other cities entering into comparison in this report are based on 18 square feet per pupil. If we make the corresponding calculation for Boston's new Wells District School, we have a cost of \$210.54 per pupil. It is now worth while to note what the Boston children receive for this expenditure in comparison with the accommodations provided in other cities for less expense.

We may well choose for this comparison the new Murray Hill building in Cleveland and the Madison building in St. Louis. When the costs of the three schools are figured on the same basis, it is found that the expense per pupil in the Boston school is \$210, in the Cleveland building it is \$190, and in the St. Louis one it is \$178. The committee is confident that no one conversant with the facts can validly claim that the quality of construction in the Cleveland and St. Louis buildings is not fully equal to that found in the new Boston buildings. The accommodations provided in the three buildings are placed in parallel comparison in the lists on page 206, and an inspection of the data of this report will show that equally impressive comparisons will be made if other schools are substituted for those chosen for this comparison.

In the case of all three schools the accommodations listed are those considered as having a direct educational value for the children and such other portions of the buildings as offices, storerooms, toilets, corridors, etc., have been omitted from the comparison.

In the opinion of the committee, the fact that the Schoolhouse Department expressly states that it offers the Wells District School as a type of the new fireproof buildings to be erected in Boston should arouse the citizens and teachers of the city to protest. As compared with the most advanced practice of progressive school systems, such plans as those of the Wells District building are based on pre-modern ideals of education. The city is paying a price which should be sufficient to purchase the very best educational accommodations. The children are being provided with educational plants of better construction than those built a generation ago, but far inferior to those of other cities where the educa-

tional authorities direct the planning of schoolhouses, and architectural developments are shaped by educational progress.

BOSTON.	ST. LOUIS.	CLEVELAND.
Wells District School.	Madison School.	Murray Hill School.
\$210 per pupil. First-class fireproof. 4 stories. 24 class rooms. 2 playrooms. Auditorium. 3 teachers' rooms. Nurse's room.	\$178 per pupil. First-class fireproof. 3 stories. 26 class rooms. 2 play rooms. Boys' gymnasium. Girls' gymnasium. Boys' shower room. Girls' shower room. 2 teachers' rooms. Medical inspection and rest room. Kindergarten work and store-rooms.	\$190 per pupil. First-class fireproof. 3 stories. 28 class rooms. Boys' gymnasium. Girls' gymnasium. Swimming pool. Boys' locker and shower. Girls' locker and shower. Dispensary and reception. Sun room for open air classes. Warming and locker room for open air classes. 3 teachers' rooms. Domestic science. Manual training. 2 kitchens. Filter room. Teachers' lunch room. Pupils' lunch room. Housekeeping suite: Living room. Bed room. Dining room. Kitchen. Laundry. Elevator for open air.

#### MODERNIZATION OF OLD BUILDINGS.

Probably no other city in America faces so serious a problem as does Boston in the task of modernizing its old school buildings. The city has very many very old schools. At the present time the permanent buildings in use are some 263 in number. Fifty-nine schools, or nearly one quarter of all, are more than 50 years old. One hundred and twenty-six buildings, or practically half of them, are more than 30 years old. The dates of erection are presented in Table 9.

When old buildings are used for school purposes a consistent policy for modernization, annual expenditures of generous size, and unremittingly intelligent effort are essential, if the welfare of the children is to be safeguarded. Stairs must be straightened and fire-proofed, new provisions made for adequate lighting, fire escapes installed, furnace rooms protected, toilet arrangements replaced, floors renewed, old plaster blackboards replaced by slate, and scores of minor matters looked after.

Boston has spent much money on this work, but vastly more needs to be done. Many unnecessary fire and panic hazards remain in the schools. The School-

house Department states in its report for 1914 that it is firmly of the opinion that there is little danger from fire for the children in the schools of Boston. The committee is firmly of the opinion that there are no adequate grounds for the complacent optimism of the department in this matter. Most of the schools are of non-fireproof construction. Many are without fire escapes. Crooked wooden stairs abound. Many basements are not fireproofed.

TABLE 9.—Date of Erection of Boston Schoolhouses Now in Use.

Year.	Number of Buildings.	Year.	Number of Buildings.
1800 . . . . .	1	1877 . . . . .	2
1823 . . . . .	1	1879 . . . . .	1
1824 . . . . .	2	1880 . . . . .	6
1838 . . . . .	1	1882 . . . . .	3
1840 . . . . .	1	1883 . . . . .	2
1842 . . . . .	1	1884 . . . . .	5
1843 . . . . .	1	1885 . . . . .	2
1845 . . . . .	2	1886 . . . . .	2
1846 . . . . .	1	1887 . . . . .	3
1847 . . . . .	6	1889 . . . . .	2
1848 . . . . .	1	1890 . . . . .	1
1849 . . . . .	3	1891 . . . . .	4
1850 . . . . .	2	1892 . . . . .	9
1851 . . . . .	1	1893 . . . . .	4
1852 . . . . .	3	1894 . . . . .	2
1855 . . . . .	4	1895 . . . . .	11
1856 . . . . .	6	1896 . . . . .	9
1857 . . . . .	5	1897 . . . . .	6
1858 . . . . .	1	1898 . . . . .	5
1859 . . . . .	3	1899 . . . . .	4
1860 . . . . .	1	1900 . . . . .	3
1861 . . . . .	5	1901 . . . . .	11
1862 . . . . .	3	1902 . . . . .	1
1863 . . . . .	1	1903 . . . . .	3
1864 . . . . .	2	1904 . . . . .	8
1865 . . . . .	1	1905 . . . . .	9
1866 . . . . .	1	1906 . . . . .	2
1867 . . . . .	4	1907 . . . . .	5
1868 . . . . .	4	1909 . . . . .	3
1869 . . . . .	4	1910 . . . . .	5
1870 . . . . .	8	1911 . . . . .	7
1871 . . . . .	6	1912 . . . . .	5
1872 . . . . .	4	1913 . . . . .	6
1873 . . . . .	2	1914 . . . . .	5
1874 . . . . .	7	1915 . . . . .	1
1875 . . . . .	3		
1876 . . . . .	3	Total . . . . .	263

On the educational side much needs to be done in order to make the schools conform to modern standards. Many of the rooms are equipped with old plaster blackboards placed at such heights that the smaller children cannot easily write on them. They should be replaced by slate boards properly located. Platforms for the teacher's desk and chair are still retained in Boston, although long ago banished in other progressive cities. In many cases lighting could be greatly improved by carefully planned alterations.

During the past few years expenditures for repairs and replacements on old buildings have cost from a third of a million to more than a half of a million dollars each year. Nevertheless, conditions in the old buildings do not compare at all favorably with those found in other progressive cities, and the committee is unable to state that the Schoolhouse Department has at present any well formulated, continuing policy for the progressive modernization of old buildings.

The annual reports of the department tell of work done each year. Inspections of the buildings themselves show so much that imperatively needs doing that the observer who is conversant with accomplishments in other cities cannot be greatly impressed by contemplating what has already been accomplished in the old buildings of Boston. A request made of the Schoolhouse Commission that they make a statement regarding their policy in the matter of modernizing old buildings was met by a refusal to give any information at all on the subject.\*

#### REPORTS ON WORK ACCOMPLISHED.

The Schoolhouse Department publishes a report annually for the year ending February 1. This report tells of the work done during the year in erecting new buildings and in making repairs on old ones. It also presents data for the entire school plant showing the number of buildings in use and such facts concerning them as the date of erection, number of rooms, cost, etc.

After a careful study of the most recent reports, the committee has found it impossible to secure from them adequate and accurate information concerning the work and expenditure of the department. In the earlier years of the existence of the Schoolhouse Commission the annual reports contained several noteworthy contributions on such important subjects as lighting, heating,

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\* See page 4.

ventilating, standards of construction, etc. The most recent reports do not contain material of this sort nor do they account in any adequate way for funds expended or results achieved.

The Schoolhouse Department purchases sites for buildings without the educational authorities having control over the choice of locations, but makes no published report as to the extent and nature of the real estate transactions. Each year the department describes new work under way by districts, but when the schools are finished they are given names differing from the district names and the data on cost appear in the annually published tables under these new headings. This practice makes it impossible to check the reports of work from year to year without securing the assistance of someone intimately conversant with the two sets of information. Data on costs are published in tables in each report, but these are so inaccurate that in many instances items of cost on the same building are at one figure in one place in the report and at another in another place.

For example, in the current report for 1915 the cost per cubic foot of the William Lloyd Garrison school appears as 27 cents in the descriptive schedule of buildings, and as 24 cents in the table of costs. Similarly, the figure for the Samuel Adams School is 23 cents in one place and 22 cents in the other. For the John Cheverus School the total cost is given as both \$102,706.35 and \$102,076.35. For the same building the cubiture is given in one place as 535,474 and as 535,458 in another. When asked to produce information directly from its original accounts in order to show precisely what the costs really were, the commission refused to do so.\*

For several years the Schoolhouse Department has been publishing figures purporting to show that it has been supplying Boston with schoolhouse accommodations at a most reasonable rate. The annual reports indicated that the Boston buildings cost less per class room and less per pupil than the schools of other large cities. The committee finds that these apparently favorable showings have been produced by the methods used in presenting the figures and that they are not in accord with the true conditions.

Three factors have been largely responsible for making the Boston schoolhouses look cheap in the annual reports.

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\* See page 4.

In the first place, the figures purporting to give the total cost of the buildings have not included the very large expenditures for plans, specifications and inspection. In the second place, the Schoolhouse Department has omitted from its statement of the cost of each building any item for administrative expense for its own support. This item is a heavy one. In the third place, the department has been building very small schoolrooms, which has kept down the cost per room, and has allotted to them large numbers of pupils, which has kept down the cost per pupil. The rooms have measured 29 by 23 feet, and 15 square feet of floor area have been allotted to each pupil. The point here made is not that these standards are undesirable, but that they do not furnish a valid basis for comparing costs with other cities building larger rooms and allotting more square feet per pupil.

After taking into consideration all these conditions, the committee arrived at the conclusion that the building costs stated by the Schoolhouse Department must be increased by 10 per cent to arrive at the true cost of the building plus the plans, specifications, inspection and service by the Schoolhouse Department. The cost per pupil as figured by the department must be increased by 20 per cent to make it comparable with the figures used in other cities which allow 18 square feet per child instead of 15 square feet in computing per capita costs.

These two factors in combination make a total of 32 per cent which must be added to the official Boston figures in order to arrive at a cost statement comparable with that for other cities.

It seems probable to the committee that an accurate cost accounting would show that the figure for expense of the department, properly chargeable against each new building, is in reality even larger than has been indicated. It has been impossible to avoid some estimating on this point for the department has been charging the salaries of the commissioners and clerks against repairs and replacements and not against the accounts for new buildings. This seems to be true also of a large share of the rest of the administrative expense of the office.

When asked to furnish data on the expense of plans, specifications and inspection for certain specified buildings, the commission refused to give any information in the matter.\*

The committee is unanimously of the opinion that its

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\* See page 4.

estimates of the actual costs of the Boston school buildings should not be considered too high until all the facts in the case have been secured through a thorough audit of the books of the Schoolhouse Department.

THE SCHOOLHOUSE COMMISSION NOT A CIVIC OR  
EDUCATIONAL NECESSITY.

The committee is convinced that the establishment of the Schoolhouse Department, administered by the independent Schoolhouse Commission, has not made for economy, efficiency, or for the best interests of public education. It appears that the establishment of the commission was due to the belief that the interests of education would be safeguarded by taking away from the School Committee the duty and responsibility of purchasing sites and erecting buildings. It was felt that these matters, involving the expenditure of great sums of money, would better be placed in other hands, thus leaving the School Committee free to deal exclusively with purely educational problems.

This decision overlooked the fundamental truth that the locating, planning and constructing of school buildings are educational problems fully as truly as they are financial, architectural and engineering problems. Here as elsewhere in the administering of public education experience has demonstrated that every educational problem is a financial one and every financial problem is an educational one. In other cities throughout the country experience is amply demonstrating that the educational authorities, whose business it is to provide for the training of all the children, are the ones who learn to know most accurately and certainly just where school buildings should be erected, which locations are most desirable, what types of buildings are needed, and how many and what kinds of accommodations they should provide.

The duty of providing these accommodations must be delegated, but the results can never be satisfactory if the department to which the delegation is made is independent of the educational department. The cities which are receiving the best educational returns on their expenditures for school buildings are those cities which have well-planned architectural divisions as regular parts of their permanent organizations. A small city, or one which is not increasing rapidly in population,

may find it desirable and economical to arrange for the construction of buildings through securing the services of a private firm of architects of proved ability in schoolhouse construction. On the other hand, experience demonstrates that in municipalities where many new school buildings must be erected from year to year, the best results are obtained through an arrangement by which the educational authorities directly control the provision for increasing the educational accommodations.

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## CHAPTER IX.—SUBSIDIARY MATTERS.

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Referring now to the outline of inquiry, 1, 2, 6 and 8 and parts of 3 and 5 have received detailed treatment in the preceding chapters. No. 7 has already received such full and adequate treatment by the Finance Commission that the committee desires merely to indorse the findings of the commission in the matter of paying city employees by cheques, and to say that they know of no large city, except Boston, in which city employees are paid by a plan so time-wasting as the one which the Finance Commission has disapproved.

3. (a.) *The Proper Number of Pupils to a Teacher.*—No absolute rule can be laid down upon this subject. Reference to chapter VII., Tables 9 and 10,\* demonstrates the fact that in the Boston schools, both high and elementary, the quota of pupils per teacher averages higher than in representative cities of its population class. Only three in the table, Cleveland, Jersey City and St. Louis, have larger classes in their elementary schools, and only one, San Francisco, in high schools. In this list of twenty-one cities Boston's rank with respect to the number of pupils per teacher in elementary schools is 18; in high schools its rank is 20.

In School Document No. 12, 1915, page 19, a computation made on a different basis shows that in Boston elementary schools the average number of pupils per teacher has dropped from 51.5 in 1899 to 42.9 in 1915; while during the same period the average number of pupils per teacher in high and Latin schools has risen from 28.4 to 31.2.

According to the Rules and Regulations the standard class in elementary grades numbers 44. Many cities have actually reduced the number below this standard, and the tendency the country over is toward a smaller number of children per teacher than Boston's present rules suggest. It must be remembered that in the tables to which reference has been made, special classes ranging from 15 to 30 pupils each, of which Boston has a considerable number, are counted with the regular

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\* Pages 171 and 173.

classes in arriving at the average number of pupils per teacher. On September 30, 1915, according to a statement prepared in the office of the Superintendent, there were 709 classes out of a total of 2,070 in the elementary schools, exclusive of kindergartens, in which there were more than 44 children. In 102 classes there were from 50 to 54 children; in 20 classes there were from 55 to 59 children, and in 44 classes there were more than 60 children.

Under present rules a special assistant may be appointed in Grade I when the number of pupils exceeds 50, in Grades II to VIII when the number exceeds 60.

Even if we assume that all classes above 60 were provided with a special assistant and that those ranging from 50 to 59 were of Grade I and were provided with special assistants, a fact which the table does not disclose, there must have been 543 classes in which the number of children was in excess of the regular quota. In other words, one class of every four was too large, even when measured by Boston's over-large standard. Further effort should be made to keep classes down at least to the number prescribed in the rules.

3. (b.) *The Lengthening of the School Year.*—This question requires further study and experimentation before a valid answer can be given. Newark, New Jersey, is the only city in the United States that maintains the all-year school, and this only in three build-ings. The results are said to justify the continuance of the plan.

In the opinion of the committee there can be no question of the desirability of summer schools, both high and elementary, for pupils who need to review and also for those who wish to gain special promotion. This is equivalent to lengthening the school year for pupils who desire to avail themselves of the opportunities offered.

4. *The Elimination of Extra Pay to Teachers for Service in Vacation Schools and Other Offices with Extra Pay for Persons Employed on Annual Salaries.*—In so far as this question applies to regular teachers who also serve in the vacation schools, it is obvious that since but comparatively few teachers are required in the vacation schools, those who thus serve should receive more compensation than is allowed those who teach only from September 1 to June 30. Whether this extra compensation is included in the annual salary

contract or in a separate contract seems immaterial. The regular salary schedule is understood to call for ten months of actual service, whether the salary is paid in ten installments or in twelve. If the salary schedule were liberal enough to cover work in the vacation school as well as that done in regular term time, there could be no objection to an interpretation which would require twelve months' work, but on that interpretation none should be excused. To require summer work of some and not of others who receive the same salary would obviously amount to unjust discrimination. To regard as "extra pay" the compensation given to some teachers for services which other teachers on the same salary schedule are not required to perform can hardly be reconciled with the actual facts.

5. *The Advisability of Reducing the Common School Course to Seven Years.*—The committee recommends the adoption of the six-three-three plan under which the elementary school course would be reduced to six years. See Chapter III, page 36.

## APPENDIX.

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### METHODS OF COMPUTING EXPENDITURES FOR SCHOOL PURPOSES PER PUPIL IN AVERAGE DAILY ATTENDANCE.

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As is stated in the body of the report, most of the data used in the comparative study are from the reports of the United States Commissioner of Education. Other sources of information have been referred to in foot-notes to tables and, in some instances, in the text. Mention has been made in the text of possible limitations of the available data, and the effect of inaccuracies and of variations in classification upon the comparative statistics has been considered.

In order to make the figures for the different cities comparable, expenditures for school purposes have been stated in terms of population, of wealth and of school attendance. It seems unnecessary to discuss further the methods employed in computing expenditure per inhabitant and per \$1,000 of wealth. The method of computing expenditure per pupil in average daily attendance, the ratio employed in most of the comparative tables, will be considered in the following paragraphs.

It is not easy to secure from the Commissioner's reports figures which are strictly comparable and which at the same time constitute a complete record of the different school systems. In the present study the principal comparisons have been based on expenditures made by the different cities for schools of every type. The per capita based on average daily attendance have been obtained, however, by dividing expenditure for all schools by the number of pupils attending kindergartens, elementary schools and high schools.

This basis of computing per capita is, in theory, imperfect. Its imperfection arises in part from the omission from the divisor of figures relative to attendance in evening and special schools, and in part from failure

to take into account variations in the proportion of secondary school pupils in the different cities.

In the reports of the United States Commissioner of Education for 1911 and 1912 complete and separate classifications of expenditures were given for elementary schools and for secondary schools, for evening schools and for day schools. The only complete classification appearing in the 1914 report relates to expenditures for all school purposes. There are tables dealing separately with expenditure for elementary schools and expenditure for secondary schools, but these do not include figures showing expenses of administration and supervision. Although the statistics of the most recent report are nominally less complete than the statistics for 1911 and for 1912, an examination of the earlier reports shows that complete information regarding all departments of school work was secured for but a relatively small number of cities; hence the reduction in the scope of the presentation is not as much of a loss as might be thought.

Satisfactory information as to average attendance in special schools is not available. As the figures showing expenditure which have been used in the comparisons include expenses for schools of all types, while the numbers representing pupils in average daily attendance, used as divisors in computing ratios, do not include pupils attending special schools or evening schools, it is clear that all the per capita obtained will be somewhat larger than the per capita that would have been obtained if all children had been considered, or if expenditure for pupils in special schools and evening schools had been excluded. What is more important, the relationship between the figures for the different cities is affected by variations in the proportion of special school and evening school pupils in these cities.

It has been seen, however, that separate data relative to expenditure for kindergartens, secondary schools and elementary schools and data relative to attendance in special schools are not available. Moreover, per capita obtained by dividing expenditure for all schools by the total number of children, including those in special and evening schools, might be less significant than the per capita that have been used.

The possible effects of including special and evening

school pupils in the divisors used in computing per capitas may be illustrated by computations based on the hypothetical figures of the following table:

CITY.	PUPILS IN AVERAGE DAILY ATTENDANCE IN			EXPENDITURE.		
	Kindergartens, Elementary Schools and High Schools.	Evening and Special Schools.	All Schools.	For All Schools.	PER CAPITA BASED ON PUPILS IN AVERAGE DAILY ATTENDANCE IN	
					Kindergartens, Elementary Schools and High Schools.	All Schools.
A.....	1,700	300	2,000	\$50,000	\$29 41	\$25 00
B.....	1,900	100	2,000	50,000	26 32	25 00

Cities A and B spend \$50,000 each for all schools and the total number of children in average daily attendance in each city is 2,000; hence the per capita expenditure, based on the total number of children, is \$25 for each city. But in City A only 1,700 of the 2,000 children are in kindergartens, elementary and high schools, as compared with 1,900 in City B. If, employing the method which has been followed in computing the ratios used in the present study, the total expenditure of each city is divided by the number of pupils in regular schools, the resulting per capitas are \$29.41 for City A and \$26.32 for City B. Both of these per capitas are higher than the other per capitas mentioned. Moreover, the figures for A and for B differ rather widely, and, as the total expenditure and the total number of children are the same for both cities, it might seem that the ratios were less valid than those derived from expenditure for all schools and total attendance.

It is a mistake, however, to assume that the ratios based on total expense and all children in attendance are valid and comparable figures. The point cannot be too strongly emphasized that if the per capita expenditure for regular schools had been identical in Cities A and B, and if the per capita expenditure for evening and special schools had likewise been identical, the aggregate expenditure for all schools, and the per capita based on all children and aggregate expenditure, would

